

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

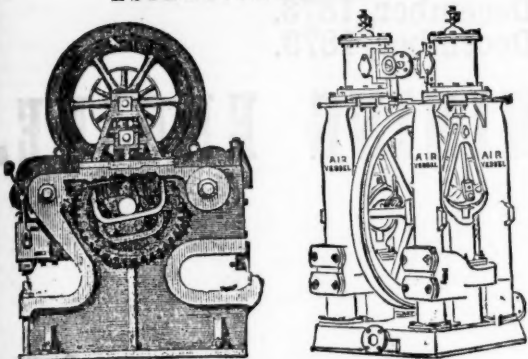
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No. 2061.—VOL. XLV.

LONDON, SATURDAY, FEBRUARY 20, 1875.

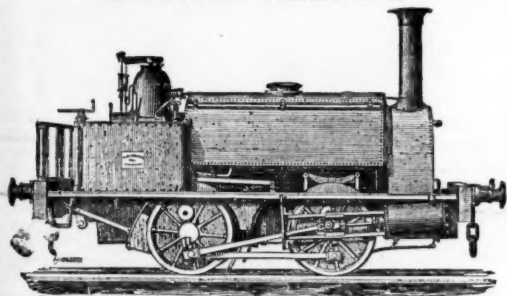
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FOR CONVEYING CHARGE IN BLASTING ROCKS, &c.
Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1852, in London; at the "IMPERIAL EXHIBITION," held in Paris, in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXPOSITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Altona, in 1869; and at the "UNIVERSAL EXHIBITION," Vienna, in 1873.

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PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES STEAM CAPSTANS; and CRUSHERS of various sizes. BOILERS, PIT WORK of all descriptions, and all kinds of MATERIALS required for MINING PURPOSES.

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In consequence of the varied applications of our now celebrated ROCK DRILLS, and the numerous enquiries for a Light and Cheap Machine, by which the merits of the principle can be practically tested, we have just introduced a Drill specially adapted for experimental purposes, and are prepared to supply this Machine at the very low price of

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We are likewise ready to supply Drills of other qualities and sizes (all being the same in principle), with the latest modifications of our system, adapting them to all the requirements of portability for Mining and other various purposes of Rock Boring.

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Large chimneys can be done away with. Succeeds thoroughly in condensing ammonia.

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At sea or on shore, and are the

ONLY ONES WHICH GIVE THE FULL PRESSURE

In the boiler to the piston at the top and bottom of the stroke automatically cutting off the steam according to the requirements of the work, thereby effecting an

IMPORTANT SAVING OF FUEL,

And, in case of a break-down,

INSTANTLY SHUT THE STEAM COMPLETELY OFF,

Thus preventing further damage.

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16 LBS.

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STEAM.



	Weights	Bores	
No. 1.....	65 lbs.	1½ holes.....	£20
No. 2.....	80 "	2 "	66
No. 3.....	105 "	3½ "	88

N.B.—These prices are for the

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A careful comparison of the above data with those of any other Drill is urged upon intending purchasers.

HEADING STAND, 1 cut..... £20.

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THE "KAINOTOMON" ROCK DRILL,

The SIMPLEST, CHEAPEST, and BEST Machine in the World for
SINKING, MINING, and QUARRYING,



Is extensively used at the principal Mines, Collieries, and Quarries of Great Britain, and the Continent of Europe.

"To this invention, which appears to possess several advantages over the machines previously exhibited at Falmouth, the Judges are unanimous in awarding a first-class silver medal" (the highest award).—*Report of the Judges at the Royal Cornwall Polytechnic Society's Exhibition, 1873.*

"The boring machine works splendidly."—W. TORRANCE: *Mid-Calder.*

"For simplicity, compactness, and performance of work, your drill excels all others."—JOHN MAIN: *Crossfield Ironworks.*

"Under the most difficult circumstances, they give every satisfaction."—G. GANN: *Montreal Iron Mines, Cumberland.*

"The simplest and best boring machine."—Capt. WASLEY's letter to the *Mining Journal*, Oct. 18, 1873.

"It gives every satisfaction."—W. E. WALKER: *Lord Leconfield's Iron Mines.*

"The rock-drill I bought of you seven months ago has given me entire satisfaction, and I am convinced that the 'Kainotomon' is the best rock-drill in the market."—P. MCGINNIS: *Strabane.*

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The advantages over other Rock-boring Machines claimed for the "Kainotomon" are—

- 1.—It is much shorter.
- 2.—It is much lighter, and more readily removed from place to place.
- 3.—It requires the turning of ONLY ONE, instead of a number, of set screws, to fix it in position at any angle.
- 4.—It may be fed 3 inches out of stroke, without stopping the working of the drill, an invaluable advantage.
- 5.—It is not liable to derangement.
- 6.—It has not one-third the number of parts in its construction.
- 7.—All stuffing-boxes and parts requiring adjustment are dispensed with.
- 8.—It is so simple in its construction that any ordinary labourer or miner can drive it, simply having to turn on the motive power and feed the drill.
- 9.—The rotation is compulsory, and regular.
- 10.—40 lbs. pressure only is required to work it.
- 11.—A saving of over 50 per cent. in iron and flexible piping.

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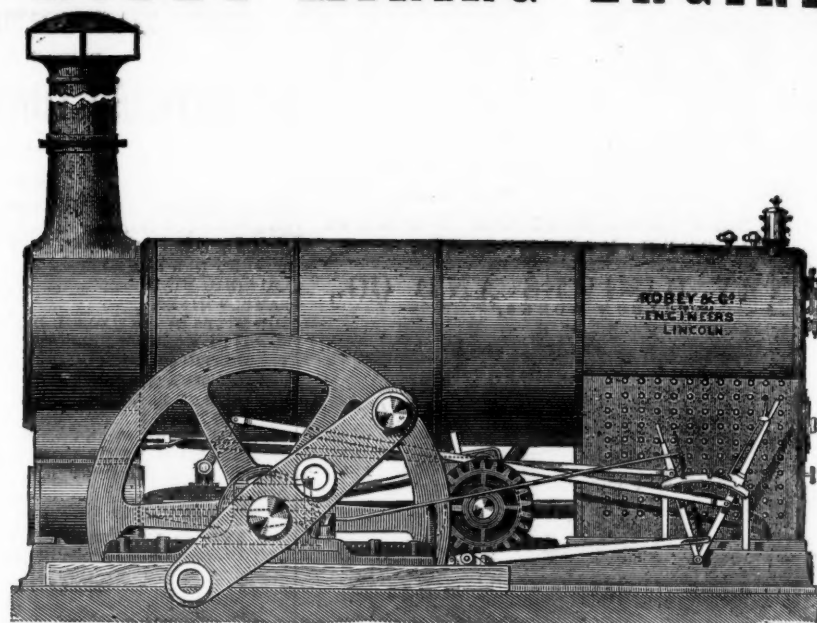
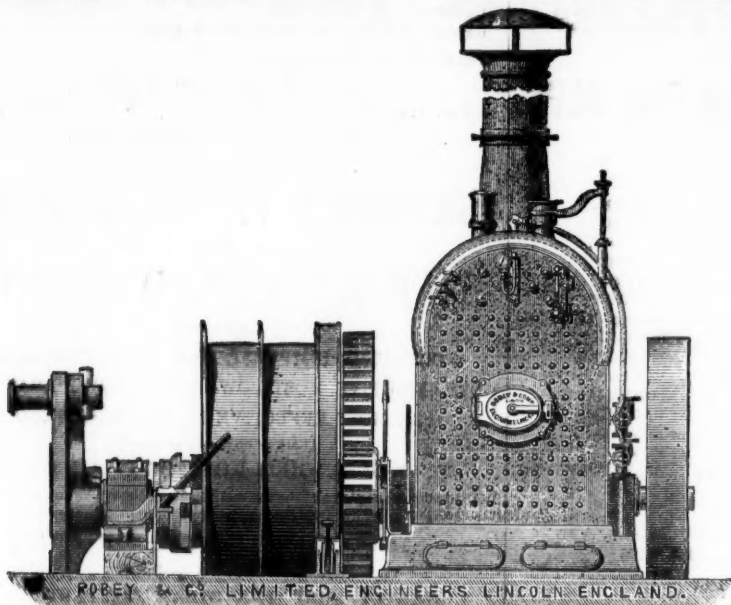
Patent No. 4136

Dated 16th December, 1873.

Patent No. 4150

Dated 17th December, 1873.

THE PATENT IMPROVED ROBEY MINING ENGINE.



Some of the advantages of the New Patent Engine are as follows:

- Small first cost.
- Saving of time and expense in erecting.
- Ease, safety, and economy in working.
- Great saving in fuel.

This New Patent Engine is free from all the objections that can be urged against using the old style of Semi-Portable Engine for permanent work, because it possesses the rigidity and durability of the Horizontal Engine, and at the same time retains the advantages of the semi-Portable, in saving time and expense in fixing.

This New Engine is admirably adapted for driving Flour Mills, Saw Mills, Brick Machines, Pumps, Ore Crushers, Stone Breakers, and all descriptions of Fixed Machinery.

ENGINES UP TO 200 EFFECTIVE HORSE-POWER ALWAYS IN PROGRESS.

Prices and full particulars on application to the sole manufacturers:—

Robey and Co. (Limited), Perseverance Ironworks, Lincoln, England.

CAUTION.—Notice is hereby given, that any person infringing the above Patents will be forthwith proceeded against.

IMPORTANT TO COLLIERY OWNERS.

PATENT STEAM PUMPS,

Awarded the only

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Vertical Steam Pumps,

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FOR FORCING

WATER OUT OF MINES,

FEEDING BOILERS, AND

ALL PUMPING PURPOSES.

Prices and testimonials on application to

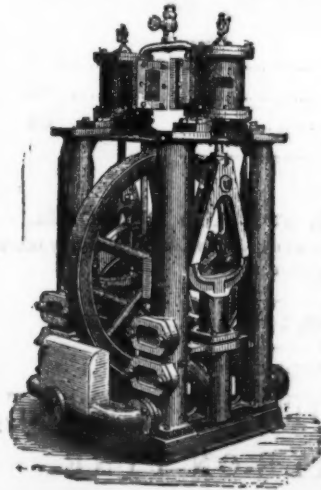
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ST. LAWRENCE ROPEWORKS, NEWCASTLE-ON-TYNE.

ESTABLISHED 1782.

THOMAS AND WILLIAM SMITH,

Manufacturers of all kinds of Iron, Steel, Copper, and Galvanised Wire Ropes, Hemp and Manilla Ropes, &c., Round and Flat Shaft Ropes, Crab Ropes, Guide Ropes, Hauling Ropes, and Galvanised Signal Strand, Ships' standing Rigging fitted complete, Patent Hemp and Manilla Hawseers, Warps, Cordage, Spun yarn, &c., &c., Manilla Yarn for Telegraph Cables, &c., Flat Hemp Ropes for Driving Bands, Steel Plough Ropes, Fencing Wire and Strand, Lightning Conductors, &c.

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STORES: DOCKYARD, NORTH SHIELDS; QUAYSIDE, NEWCASTLE; NEW MARKET, SOUTH SHIELDS; AND EAST INDIA DOCK, BLACKWALL.

Original Correspondence.

GOLD AND SILVER MINES OF GILPIN COUNTY, COLORADO.

On account of the gold-bearing lodes of this county having been found so rich at surface, it has often been said they would not be productive in depth. This absurd notion became very prevalent, and operated very seriously against the country for several years, causing the partial or total abandonment of many valuable mines. Now, as the true nature of these gold deposits is not generally known to the public, I will try to explain their mode of occurrence. The gold in the lodes is both chemically and mechanically associated and combined to a certain extent with the sulphurets of iron or copper, which has to be resorted to. Hundreds of patents have been taken out, and millions of dollars expended, to effect this by direct mechanical means, but nearly all have resulted in failure. Trituration alone, only to a very slight degree, will set it sufficiently free for amalgamation. Nature, however, does it by the slow process of disintegration at first, and subsequent decomposition. Gold, like many other bodies, whether in the animal, vegetable, or mineral kingdom, has its peculiar affinities by molecular attraction; this results in the agglutination of the atoms set free, if they are permitted sufficient time to coalesce, hence we have coarse-grained gold and nuggets. It is, however, very rarely found in this latter form within the lodes far below the surface; they occur chiefly in the alluvial gravels near where the lodes cross the gulches or ravines. The backs of the lodes consist mostly of gossans or decomposed vein matter, more or less ferruginous as a sulphate, and generally two or more parts of the components of the bounding formation; this ore contains "free gold," and can be reduced in any ordinary stamp mill, arrastra, or grinding pan. Modern stamps are provided with amalgamated copper plates; these are placed both in and outside the batteries, and if they are kept bright, clean water used, and the ore is tolerably free from antimony and arsenic, will retain from 65 to 80 per cent. of the free gold contained in the ore, if it is in a fine state of division; this class of ore is almost exclusively confined to a certain zone below the surface, and which I call the line of atmospheric decomposition; it varies according to the geological structure of the mountains, from 50 to 300 ft., but we occasionally find it deeper. Below this line the gossans cease, and the ore is a sulphuret of iron, copper, lead, arsenic, antimony, zinc-blende, and manganese of iron, sometimes called "wad," it is now "fixed gold," and goes by the appropriate name of smelting ore, as its profitable reduction can only be effected through the furnace. There is, however, still yet one more free gold feature about some of these ores; if the gangue contains much felspar, and this is in a decomposed state, especially when in the form of a flookan, the gold can be set free to some extent in a stamp mill. We have several mines working at a depth of from 500 to 700 feet that more than pay all the cost of the establishment from this low-grade stuff; and if the mills would save the tailings and concentrate the copper and pyrites, they could make a good profit thereby, for in this condition it is worth from \$15 to \$45 per ton. I have made assays of some that yielded nearly 4 ozs. of gold; the proportion of ore to gangue is about 1 in 15. The two classes—those that have free and those that have fixed gold—are easily discernible; almost any ordinary labourer, after a few weeks' practice, can separate them as they come up from the mine. The free gold stuff goes direct to the stamp mills, and the other to the smelting works at Blackhawk, or Spanish Bar; the one is only two miles and the other six miles distant from the chief mines. These works are doing an extensive business, but ere another year expires there will be room enough for two or three more such establishments; the first is known as the Boston and Colorado Company, under the management of Prof. Hill, having with him Mr. Pearce, late of Swansea, as acting metallurgist. The Spanish Bar Works are in Clear Creek county, and under the direction of Mr. Williams, also of Swansea, so we have at least two thoroughly practical men among us, and it is to be hoped we shall soon have more like them.

About two years ago I had the pleasure of meeting several gentlemen from London who were here negotiating the purchase of two mines—the California and the Kansas. From some cause, of which I am ignorant, the first was abandoned soon after the company took possession, although it is a fine lode. The latter was working for some time under the management of Capt. James Williams, of Red-ruth, who, as a practical and experienced miner, we are led to believe did his best under the circumstances; but something went amiss, and he left for England, much to the regret of many persons here, for he is one of that valuable class so much wanted in Colorado. It was no fault of the mine, however, at least the Kansas lode, as the following figures will show, the original compilation of which I herewith forward:—Waterman-Kansas Gold Mine, under the local direction of Mr. Fagan, of London, and Mr. Sullivan, of Central City:

NINE MONTHS' RETURNS FOR 1874.	
5400 tons stamp mill ore producing \$13-23, averages.....	\$71,463-33
Smelting ore, weight not ascertained, from \$60 to \$90	4,140-43
From tributaries' mixed ore	2,891-61
Total	\$78,506-47
Cost: The operating expenditure, including mining, repairs, extension of mine and plant, and agencies as per statement in detail.....	41,371-75

Gross profit on nine months' working \$37,134-72

Now, this magnificent profit, which exceeds 47 per cent. on the operating cost, has been made from the labour of less than 40 men of all grades employed on the mine, and in some instances under adverse circumstances. Suppose we had such a mine in Cornwall. I do not remember the extent of this set, but I think it does not exceed 500 ft. in length, and this, too, on one lode only. Why, we should have 200 men at work, and as the managing expenses would be much about the same, the ratio of profit would be greatly in excess. I adduce this as one instance only; there are many others; some exceed it two to one in the way of profits. The average cost of working these mines may be put down—for sinking, \$72 per fathom; driving levels, \$36; cross-cuts, \$45; stoping, \$18; milling, \$3 per ton; smelting, from \$20 to \$35; crushing and concentrating, \$2-50; and hauling with two horse teams, \$10 per day. The reduction charges on copper and gold are much less than for silver-lead ores. I have just received from the manager of a lead works, to whom I shipped ore from one of the mines in the Clifton district, the following certificate:—

Lead, 45 per cent.; coin value	\$ 48-00
Silver, 44 ozs., at \$1-29	58-78
Gold, 1/2 oz., at \$13	8-00
Per ton of 2000 lbs.	\$112-76
He says—We pay \$1 per unit for all lead over 30 per cent.; \$1-20 for silver over 25 ozs.; and \$1-50 for copper over 10 per cent.: 50 per cent. is charged for reducing the gold. Now, according to assay this parcel of ore should bring:—	
Lead, 48-30 = 18 per cent. x \$1-00	\$18-00
Silver, 44-25 = 19 ozs. x \$1-29	24-51
Gold, 1/2, at \$16-50 per cent. charges	4-00

Net value at the smelting works \$46-51

From the schedule, as quoted, the reduction charges for this class of ore, where all the metals are separated, amounts to \$66-25 per ton, which is much too high, and I think a little wholesome competition would not injure the miner. The operating cost at the mine, where the above ore came from, is about as follows:—

Mining per ton, including materials	\$10-00
Dressing of the first-class ore (mere bucking down)	4-00
Carriage by road and rail	4-00
Management estimated to average	2-00

Per ton \$20-00

I will now direct attention to the Russell gulch mines, which are in the same neighbourhood: they are chiefly gold-bearing, but in the value of their ores stand foremost in the country. There is a group of five nearly parallel lodes on a property known as the Old and the West Pewabic; their position is between the gold and silver belts, and as they approach or recede from the line of junction the ore partakes more or less of either metal, but all contain a large percentage of copper, which is chiefly a carbonate. The ore assays from \$28 to \$250 per ton. Some little time ago I was called on professionally to

inspect and value one of these lodes for some English gentlemen, and as the ore varied so much in quality it was decided not to depend on any assay, however carefully made, but to make an average sampling of the first-class, and ship it direct to Swansea. The lode produced of all grades 4 tons per fathom. In due course of time I obtained this statement:—

Received 42 bags of ore		Weight.
Yielding—Gold, 14 1/4 ozs.	1 ton 7 cwt. 0 qr. 16 lbs.	
Silver, 32 ozs.		273 2 8

Now, if we reduce this weight to the American ton of 2000 lbs., and the coin value to currency, it shows the ore to be worth \$250-58 per ton. This certificate was destroyed in the great fire, and I cannot remember which house at Swansea purchased the ore. I think, however, Mr. F. H. Richardson, of 8, Finch-lane, might tell all about it, as it was a friend of his then staying in Colorado who shipped the ore. Any of these lodes can be mined very cheaply; they are large, very productive, and the ground easy to drive; about \$12 per ton will meet the average cost.

Colorado is in the ascendant. There never were so many mines before giving good profits, and these are weekly increasing. The following statistics represent approximately the state of progress of Gilpin county for 1874:—

Gold produced valued in currency	\$1,706,904
Silver produced	1,103,487
Copper produced	35,000
Total	\$2,845,391

These figures, which show a rapid increase in the product of the mines, have been compiled from statements made to me by Messrs. Hall and Whipple, proprietors of the *Register* newspaper, who engaged a gentleman of experience in such matters (Mr. Nichols) to collate them in a careful manner, and he assures me they are as near correct as is possible to be obtained:—

Received, as purchasers, by the banks:—January, \$59,758-75; February, \$93,374-29; March, \$75,557-43; April, \$94,251-64; May, \$100,338-03; June, \$93,307-21; July, \$118,668-68; August, \$104,893-79; September, \$101,629-32; October, \$122,454-70; November, \$112,549-86; December, \$111,630-70: total by banks	\$1,190,414-40
By jewellers, and used in their business	15,000-00
By agents of eastern bullion merchants	1,100-00
By Prof. Hill, Blackhawk Smelting Works, in gold	500,390-00
By silver bullion shipped from same	303,487-00
By copper from same	35,000-00

Ores from adjacent districts, consisting of gold, tellurides, silver, petzite, lead, and copper	800,000-00
Making an approximate total of	\$2,845,391-40

There is a determination on the part of the leading mineowners of the mountains, and especially our esteemed journalists of this city, Messrs. Hall and Whipple, to place our mineral properties before the public on a legitimate footing. That these gentlemen are in earnest, I make the following quotation from an article on the subject recently published by them:—

"It is reported that several eastern capitalists have become interested in our mines during this month, and more are seeking investments of a similar kind. It is to be hoped no man will buy before he has made, or caused to be made, a thorough examination of the property offered. We have good mines enough at reasonable prices, and we enter our solemn protest against any unfair advantage being taken of purchasers; and should anything of the kind be brought to our attention, and on due investigation it proves to be well founded, we shall unhesitatingly expose it."

Central City, Colorado. CHARLES S. RICHARDSON, Mining Engineer.

MINING CLAIMS IN AMERICA.

SIR,—The Earl of Derby has kindly favoured me with copy of a Bill now before the United States Congress relative to mine claims, which is apparently intended by its author to supplement or amend the Mining Act of May 10, 1872, which only came into force throughout the United States on Jan. 1, 1875. As the text may interest some of your readers I enclose copy. HENRY SYME.

[IN THE SENATE OF THE UNITED STATES, JAN. 11, 1875.]

MR. SARGENT asked, and by unanimous consent obtained, leave to bring in the following Bill, which was read twice, referred to the Committee on Mines and Mining, and ordered to be printed:—

A Bill authorizing the issue of patents to mining claims in certain cases. Be it enacted, by the Senate and House of Representatives of the United States of America in Congress assembled, that in cases where foreigners or foreign corporations have purchased mining claims for a valuable consideration of citizens of the United States who had complied in the location and possession thereof prior to sale with the laws of the United States governing the same, and such purchase was made prior to the date of the approving of the Act to promote the development of the mining resources of the United States, approved May 10, 1872, and where such purchasers shall have complied with the said law in the working of said claims, and shall apply for a patent therefor, as in other cases, and pay to the United States the price thereof, as provided by law, patents shall issue to such parties in the same manner and to the same effect as in other cases.

SEC. 2.—That in cases where application shall be made for patent to mining claims by citizens of the United States, being bona fide owners thereof, and in possession of the same patent, shall not be refused therefor on the ground that one or more of the locators thereof may have been foreigners at the date of location: Provided, that said location shall have been made prior to May 10, 1872.

THE AMERICAN SLATE TRADE.

SIR,—For the information of your readers I beg to send you a few facts pertaining to the manufacture of slate here. This is known as the "Vermont" slate region, comprising one county in Vermont and one in New York State. The colours we have are red, purple, unfading green, common or sea green, and variegated, being a green and purple mixed. The prices at present are as follows:—Red, \$9; purple, \$5-25; unfading green, \$4-50 to \$5; common or sea green, \$3-25 to \$3-75; and variegated, \$3-25 to \$3-75. The prices in spring will be higher, as the above are the prices at the end of the season, when a lower price is always taken in order to close out stock. There is quite a large margin of profit in the manufacture of roofing slate (as you will notice especially in red), enough to enable us to ship some of our unfading green and red to your country, with which the trade is gradually increasing, while the supply of all kinds is not equal to the demand. In addition to the manufacture of roofing slate we have the manufacture of marbleised mantels, table tops, bracket shelves, &c., plain floor tiles (red, purple, and green), wash tubs, steps, lintels, &c. There are extensive mills distributed through the slate region, the principal one being that of the Penrhyn Slate Company at this place. This company is owned by Messrs. Williams and Guion, proprietors of the "Guion" or Liverpool and Great Western line of mail steamers (Guion and Company, Liverpool). They give employment to a large number of men, and have been working now some 10 to 15 years. It is only some 20 years since roofing slate was discovered here, and the business has extended already to over \$8,000,000 investment. The veins have a general course of N.E. and S.W., with an eastern dip of from 10° to 45°, the veins running mostly parallel. The workings so far have all been surface working—that is, removing the entire surface to reach the vein, and there is only one quarry where underground work is being done. It has been impossible as yet to tell to what depth the slate extends, but is generally found to improve as it gets deeper; so you will see the slate trade here is only in its infancy, but has gained such favour that nearly every new house of any pretension to style or elegance is covered with slate, while nearly all the new Government buildings are so, and all the new Government buildings now erecting in Canada are being roofed with slate. I sent a considerable quantity of slate there last season.

I mail you a rough sample of our red, purple, unfading green, and common or sea green, and if any of your numerous readers would like further information, or a correspondence as to investments, I shall try and accommodate them all in my power.

Middle Granville, New York, Feb. 2. R. L. WILLIAMS.

MINING IN AUSTRALIA.

SIR,—I had the pleasure of writing you a short account of the progress of the tin mines, &c., in this part of the world on Sept. 4 last, since which I see no more sign of the tin market being glutted from this quarter than I did before. Owing to the continuation of bad weather, and the state of the roads from Emu Bay to Mount Bischoff, the quantity of ore brought down falls short of what was expected, and I think when more practical experience is brought to bear on the dressing of the ore, that a portion of what is brought down as ore at a heavy expense will be left behind as refuse. The proper dressing of ore may be considered a science of itself, and even in Cornwall, where tin dressing is supposed to be perfect, I have found, unless strict attention is paid to the manipulation of

of the ore, that a considerable disadvantage is the result, either by not dressing the ore sufficiently clean for smelting, or by losing fine ore in the slimes, &c. The tramroad to the mines, which will require over 12 months to complete, will be a considerable advantage for the transport of the ore either to the smelting works at Launceston, or for transport to any other place. I hear the furnaces belonging to the Mount Bischoff Company, at Launceston, will be in operation immediately.

As I mentioned in a previous letter, tin ore has been found in several places in Tasmania. At George's Bay, on the north-east coast of the island, I found fine alluvial tin, which we intend to work, and although this and other discoveries in the island will ultimately be of considerable importance, and I trust profitable to the shareholders, there is no reason why you should close your tin mines in England merely from fear that the tin ore found in this part will cause a glut in the market.

The very rich lode of copper lately discovered in Queensland might slightly affect the copper market when a railway is completed to the mines. The fact is mines cannot be worked for a mere song in Australia, high wages and the transport of ore are very important items in the expenses. Up to the present the rich deposits of iron near the Tamar river (Tasmania) have not been worked to advantage, and this branch of industry, like many others here, will only succeed when in the hands of practical men.

In a previous communication I mentioned I had seen a small vein, or lode, at Mount Bischoff, on the Waratah Company's ground, in a slate formation, on which I advised the company to sink. This has, I am told, been done, and a lode from 2 to 3 feet in width has been opened containing very rich tin ore. What this will lead to remains to be proved.—Geelong, Dec. 30. JOHN HUNT.

MINING IN NEW SOUTH WALES.

SIR,—A perusal of the *Mining Journals* for October, which have just reached us, has suggested a few jottings that may interest your readers, and first as regards tin mining. Your miners and brokers still speak of the Australian tin mines as if there was a probability of their failing. Should there be a short delivery of ore at the Warwick Railway Station for a week or two, or if an unfortunate speculator purchasing tin at too high a price in Sydney loses by it in London, the cases are quoted as proof that we must be losing money, and that our yield of tin cannot be kept up. The monthly returns of our produce now published by you should satisfy those interested that our production is not falling off, and the sooner the fact is recognised that it is impossible for the Cornish tin mines to successfully compete with us in the cost of production the better it will be for all parties concerned. A fall of some 45% per ton in the price of tin has not decreased our yield, neither would that effect be produced by a further reduction to a rate that would prevent any tin mine in Cornwall from being worked to profit. Unless there is such an increase in the consumption as will absorb the extra produce the poorer mines must give up.

Your tin miners appear to be much dissatisfied with the prices given for ore by the smelters, and in this feeling we can, as fellow-sufferers, heartily sympathise with them. But why do they not follow our example, and smelt their own ore? If one mine does not raise sufficient to make this operation profitable, let a few mines combine to erect smelting works on their joint account. The price now paid for smelting in New South Wales is about 5% per ton of ore, and the loss sustained is from 2 to 2 1/2 per cent. of the amount of tin in the ore, as indicated by an exact assay. For instance, the two last parcels of ore smelted for me gave respectively 72 1/2 and 73 per cent. of tin. Here the smelting business has been rather over done; to keep their furnaces in work the smelters have to purchase ores at a fair price, and tin ore is now selling at about the same price in Sydney that it is bringing in London. Perhaps some of your readers would, in return for the results of our experience, inform us why Australian tin (which is not inferior to any in the market) brings the lowest price. That it is equal in quality to the best English brands we know from comparative chemical analyses and other tests, and yet it is quoted in London at from 5% to 7% per ton less. The tin shipped from here direct to America is reported as equal to the best English. Is there any truth in the rumour that after the Australian tin reaches England a considerable proportion of it is passed to the melting-pot, re-cast, and then comes out as "English refined?"

Another instance of the truth of the old adage "that all is not gold that glitters" is afforded by the Fuller's Reef Company. The true history of the mine may be given in a few lines. A quantity of rich quartz was found in the surface or upper portion of the veins, and gradually getting poorer in depth, was followed down as far as it would pay the miners to work. Then the old cry was raised, that it only wanted capital to erect good machinery and open out the mine to make a magnificent concern of it—of course, always meaning someone else's capital. Well, this is found by a local company, who expend a considerable sum of money and several years' work before they find that it is necessary once more to get someone else's capital to further develop the mine, and, merely as a secondary consideration, to reimburse themselves. But as this farce cannot be again played here, a new stage must be found for it. A convenient London syndicate is discovered to take it up, and convenient parties to inspect and report on the mine, who detail the great yields from the rich shoots or bunches of quartz long since worked out, and what large profits would be made if they had an unlimited quantity of the same material, but carefully avoid hinting that none of this rich stone has been left behind—except in form of specimens.

The letter signed "Mining Engineer," addressed to you from Scone, was one of the merest attempts to rig the market by means of mendacious statements. The writer speaks of seeing quartz that would yield 10 to 50 ozs. of gold per ton, when there was hardly a speck of gold to be seen in the quartz either on the surface or below. The committee of investigation appear to think that it is only necessary to put up some new machinery with a competent man to take charge of it to make the mine pay. It is to be hoped that ere this someone has suggested to them that unless the gold is in the quartz no machinery can take it out; that we have better gold mining machinery here than can be got in England; and that after our long experience we can find more competent men to work it. In Mr. Munday the company are fortunate in having a manager whose ability and strict integrity can be relied on, and they had better be guided by his opinion and advice. This is only another instance of the loss caused by not having the mines offered for sale, examined and reported on by disinterested parties before purchase. Had this been done in the present case there would have been no Fuller's Reef Company. There is nothing new to report in gold mining; private enterprise is prospering, but most of the companies have failed.—Sydney, Dec. 26. AUSTRALIAN MINER.

JAVALI MINE.

SIR,—Your correspondent, "Shareholder in Chontales," in last week's *Journal*, says that the profits for the last twelve months only averaged 200%. What will he say to the telegram this day published, to the following effect:—Advices received from the manager of the Javali Mine, under date Jan. 5; he reports that 40 vases have been driven, yielding 320 tons, and that the balance of the crushed ore or quartz was taken from the stopes and surface. The mill worked only 29 1/2 days, and crushed 1300 tons of quartz, yielding 628 1/2 ozs. of gold—1370l.; expenditure for the month, 760l., including 142l. on capital account; leaving a profit of 762l. for the month. This calculation is not a fair one, inasmuch as the real profit is 762l. + 142l. = 904l. We have, therefore, here another instance of the tremendous power of the Javali crushing machinery—1300 tons in 29 1/2 days: 900l. per month is over 10,000l. per annum, and Capt. Sohns stated at the meeting last year that he could run the mills now for twelve months without interruption; 30 head of stamps are running, and 30 are erected. What returns ought, therefore, to be given—1350l. per month certainly by last calculations. Chontales is loaded with a capital of at least 120,000l., and, being quoted at 12s. per share, stands worth about 75,000l. (including a present valuation of the 12 1/2s. shares).

Your correspondent cannot deny the tremendous returns made by Javali, several instances like the present one having occurred. Without being ungracious, or misstating facts as to the average returns of Chontales, I will admit with pleasure that these average returns per ton at the mine were, in 1870, 7-7-10 dwts. per ton, and, in 1871, 7 1/2 dwts. per ton; but it becomes amusing to find my assertion quietly backed up at the finish of his remarks, for he says—"In subsequent years the average return of gold per ton in Chontales was 4 dwts., or a little over—that is, for the last three years it has averaged only 4 dwts. or a little over per ton." The published return in to-day's paper shows but 76l. profit for December. I have no wish to detract from the merits of a magnificent undertaking like Chontales Mine—I simply compare returns of the two sister mines. Javali, in spite of your correspondent's assertions or doubts, does vary from 7 1/2 to 10 dwts. per ton. Your correspondent also hugs the idea that the Chontales have also a lode which is a con-

tionation of the Javali lode, larger in extent, and known as the Pavin Mine; and, after some doubts on my assertions as to the productiveness of the Javali Mine, amusingly finishes his letter thus—"For which we hope in good time to obtain our yield from 7½ to 10 dwts. per ton"—In fact, rejoices in the idea of being able to approach Javali Mine, and thus to obtain the coveted 7½ to 10 dwts. per ton. He must remember the old adage—"A bird in hand," &c. I do not say that the ground he refers to is not even richer than Javali set; but this I do add, without even wishing to be ungracious, that I prefer the "captured" to the "wild bird"—the proved to the unproved ground.—London, Feb. 16. BAYANE.

ROCK DRILLS.

SIR,—Your correspondent, "A Working Miner," is quite right in saying "that rock drills are expensive playthings," and that "it will not pay to buy a steam-engine to pick your teeth with;" but I think he is wrong in laying the blame of their not being more generally in use upon the mining captains, who, not having to find the money, are more inclined to extravagance than stinginess.

The question resolves itself into this:—

- 1.—How far have you got to drive or sink? What would be the average cost of driving in the ordinary way, and how long would it take?
- 2.—What would be the cost of the first outfit to start boring by machinery?
- 3.—What is to be your driving power? Coal or water?
- 4.—At what rate per fathom, compared with hand labour, can you drive?

5.—How much per fathom will the contingent expenses come to? If I had not had 500 or 600 fms. to drive, and an abundant supply of water close at hand, I should never have thought of starting a borer. Water is the cheapest of all motive powers. A steam-engine, with the wages of an engineer, and a consumption of only 1 ton of coal per day, would have made my case hopeless. The level I am driving was costing 10s. 10s. per fathom, and was advancing with four men at the rate of about 10 ft. per month. The outlay for plant amounts to 1350l.; this includes a double cylindered air compressor, a large iron air condenser, a 36-ft. water-wheel, six boring machines, and all the other appliances. I have driven 330 fms., and have totally used up the two first machines. Two are in dock, and will, I hope, soon come back as good as ever (each one having been in daily use for nine months), one now in use for about five months, and is none the worse apparently, and the sixth is untouched. The average cost per fathom has been about 6s., and the contingent expenses about 1s. 10s. per fathom. It follows, therefore, that if a contract had been taken at the hand-labour price of 10s. 10s. per fathom the contractor would have made a profit on the 330 fms. of 990l., or 3l. per fathom; and as there are still about 220 fms. to drive, he might hope to recover at the same rate 660l. more, which, added to 990l., would pay off the original sum of 1350l., and leave a balance of 300l. to the good.

The upshot, therefore, of my advice is—Let no man undertake to drive a level by contract with a rock drill unless he can get the full average price of driving by hand, with a premium for extra speed; if double speed so much, if treble so much more. The contractor need then have no fear, but in the other case the advantage rests mainly with the company, who would have got their level driven in about one-third of the time, and saved all outlay for ventilating shafts, which is no trifle. The miners have earned the average wages, with about one-half the labour.

With regard to the question of price or wages, "A Working Miner" knows that hereby hangs a ticklish tale, and I would rather have my locomotive in the shed at night than flitting away to no purpose. Miners do not like night-shifts, especially in winter, with two miles or more to walk to and from their homes. Therefore, if you place eight men in a forehead, and expect them to follow two by two in shifts of six hours, you will be counting without your host, and on an average you will lose eight hours work out of the twenty-four, but you will be paying all the time average rate of wages to the eight men, and getting only two-thirds work done. A very expensive process. I find that six men will do as much work as eight, and at a cheaper rate, and earn better wages; and that four men will do almost as much as six; they work better together, and longer hours; they come and go when it suits them. My machine, therefore, stands idle all night, and both parties are suited. I get the work done for less money by far, and with very little loss of speed. Ground that can be cut by hand at so low an average as 5s. per fathom will not pay for boring by machinery. The worse it is to do the greater the profit of the rock drill. "A Working Miner" forgets that 5 fathoms per week means 720 cubic feet, or 60 tons of solid stuff to be got out. I have never succeeded in doing more than 2 fms. per week, from which the hardness of the rock may be inferred; 14s. per fathom would not have stirred it by hand for many fathoms. If the object be solely to go ahead, time being everything and money nothing, of course I could go a deal faster, but economy in mining is the one thing needful; by all means let the men have their hands loose, and give them liberal bargains if you want to get plenty of work out of them. No working miner will refuse to share profits, or a fixed wage of 7l. 10s. per month, but what about sharing losses? I have tried and failed, the men preferred to trust to their own wits and skill in making the best bargains they could for themselves, and generally get the best of it.

Feb. 16.

GEO. WM. DENYS.

P.S.—The compressor I have is Low's double cylindered, the price of which new was 360l., and bought by me at half-price, but it will no more drive six machines than sixty, as with only one going we cannot keep the pressure up to 60 lbs. To expect to get a compressor for 35l. is simply ridiculous, neither do I believe in a 35l. borer except for coal or cheese. When you are about to get the real thing and not a plaything. Mr. McKean's estimate of 25 lbs. for the driving power of his 90l. compressor is quite erroneous; he must have a water-wheel, a water-race, and a mill-dam; it would cost six times the amount stated at the very least. You cannot drive four times as fast as by hand without very great increase of cost. In five years I have never exceeded three and a-half, and it is a "farce" to talk of giving miners 10s. a month instead of 5s. without increasing the cost per fathom. The more men you crowd into a limited space the more price you must pay, and the less work you get in proportion. This statement is enough to drive men and masters mad. I have never seen a 35l. drill, but if I had one here I fully believe I should smash it up in 24 hours, for I have a bed so hard, that screw my column up as tight as I can, it makes the machine dance like a parched pea in a frying-pan, and smashes the hardest and biggest drills like so much gingerbread. Once more, rock drills and air compressors cannot come into use as "pocket companions" for every miner, and I think Messrs. McKean wrong in giving way to the "Cheap John" outcry.

GEO. WM. DENYS.

THE ROCK-DRILL POPULARISED.

SIR,—I quite agree with the remarks in last week's Journal as to the good quality of the McKean drill, and the introduction of a drill at so low a price as 35l. should suffice to ensure a trial of the efficacy of machine drilling, but still the large cost of the air-compressor will prevent many struggling mines from testing the principle in the present depressed state of mining affairs in this country. In by far too many mines there is the utmost possible difficulty in obtaining month by month the amount necessary to meet the cost-sheets, and shareholders become heartily sick of the periodic calls of (say) 2s. per share, varied occasionally by making it 2s. 6d. or 3s. per share, so as to pay the directors' fees, office expenses, and secretary's salary, more especially as many mine officers seem only to carry on the mines for the sake of their own salaries, and almost regardless of the interests of the shareholders. It would obviously be to the disadvantage of these officials for the mine to be quickly tested, and proved valuable or worthless, as it would remove the necessity for periodical reconstitution, with its attendant profits to the secretaries or managing directors, and would also interfere with their profits from trafficking in shares.

But, as an adventurer, I should certainly like to see machine-drilling properly tested in the several mines in which I am a large shareholder; and now that 150l. will cover the cost of the trial, I shall certainly look upon the executive with greater confidence if they take energetic steps in the matter. It is but a short time since that a shareholder in one company I am connected with (I will call him Mr. Barouche) was almost frantic to have the nascent copper process tested, and urged the making of a call to provide, I think it was, 200l. to make the trial, though everyone who knows a retort

from a pipette is aware that success must be looked for from the reversal of all established chemical facts. In a mine managed in the same office Mr. Gabriel, who does not always see so straight as some men, offered to pay a call of 5s. per share upon his shares, which represented one-third of the mine, if the meeting would authorise him to go to law with the Duke of Bedford, or Duke of Beaufort, he did not appear very certain which, to turn a man out of a cottage, rented at 4l. a-year, six weeks sooner than he would vacate it quietly, though it was admitted that the company had no case, and that possession of the cottage was only held because ordinary civility had not been shown to the occupier.

Now, here are instances of 500l. or 600l. being forthcoming for matters which could not possibly tend to the commercial advantage of the adventurers, yet the proposition to raise the same amount for the introduction of machine drilling never seems to have entered the head of anyone. I have not seen a single meeting reported in the *Mining Journal* in which the suggestion to introduce machine-drills has even been discussed, and a few weeks since when at one meeting it was proposed to use dynamite, which is not less important in mining than machine-drills, the proposer could scarcely obtain a hearing. Few mines are now in less than 6000 shares, so that the 150l. required for testing the McKean drill could in most cases be provided by a call of 6d. per share, and I trust such an addition will be made to the next call in each of the mines I am connected with, so as to give the drill a trial, or even 1s. per share if it be more economic to use a higher priced drill.—Tavistock, Feb. 15. J. G.

LEGITIMATE MINING, AND WHAT IS IMPLIED THEREIN.

SIR,—The term legitimate in its application to mining means something more than a mere legal conformity to certain prescribed rules or practices. It comprises a knowledge of first principles in respect of the object it aims to explore, and a fitness and adaptability of the means to the ends intended. The complicated nature of mining taxes the ingenious faculties of enlightened and experienced minds, and affords full scope for the exercise of all their powers. The more that is known of its various ramifications the more is discovered to be yet unknown, and the stronger the incentive becomes to explore still further its interesting phenomena.

The mineral kingdom, as seen by the various operations of mining, is of a character so complicated that natural philosophers whose attention has been attracted to the subject have hitherto been unable to expound its laws or define the order of their working, and in many instances have been at a loss to determine which is cause and which is effect. The difference of opinion which prevails respecting the origin and formation of metalliferous minerals is, and must be until it can be referred to a basis established on recognised facts in nature, an impediment to the progress of knowledge in this fundamental department of mining. The creations of fancy have necessarily no connection with the deductions of reason, and should never be allowed to usurp its office or invade its sphere. It appears to me that the origin of metalliferous minerals is a question of paramount importance in relation to legitimate mining, and one which should be clearly defined and intelligibly understood, for if we know nothing of the origin of a process our knowledge of the intermediary proceedings and of the end must be vague indeed, and in what direction to look for any manifestation of the mode of action and its resultant effects no less uncertain. But if we assume to know something of the channels independently of the sources whence they proceed, what does that imply? It certainly must mean that knowledge is the offspring of ignorance; or, in other words, that darkness is a primary source of light—query, "Do men gather figs from thistles, or grapes from thorns?" A channel is a passage between one place or another, or a medium communication and conveyance between two or more points. Now, if there are passages between places or points more or less remote in the mineral kingdom, what passes these, and from whence to whither? The question of passages, or mediums of motion and operations of the forces and agencies in nature will not, I think, be controverted by anyone, as electricity has its prescribed course, and the action and direction of water is, no doubt, subject to similar laws in its passage through the rocky framework of the world, and the question to be determined is—what part do those potent agencies perform in the mineral kingdom? And here our enquiry may be aided by a reference to the functions they fulfil in the other departments of nature, but which I shall not now stay to examine, having previously traced some of the analogies in letters published in the *Mining Journal* some time since. If there are analogous conditions in the several departments of nature surely they should be considered, and the testimony they bear be allowed its proper weight in the scale of evidence furnished by incontestable natural facts. It is well known to everyone who has directed attention to the subject, and whose observations have extended to different phases of the mineral kingdom, that the functions of electricity and water therein are many and various. As a solvent the power and capacity of water is immense, and yet its readiness to surrender under certain conditions what it had abstracted under others is most remarkable.

If water is found to be freighted with certain metallic substances in solution which it contains in its passage through a variety of channels, and then at a particular point deposits them, it is reasonable to conclude, even in the absence of more direct evidence, that the conditions somehow or other have changed, and as it is well known that the laws of affinity and cohesive attraction are in constant operation in the mineral kingdom, what is more natural—nay, rational—than to conclude that the change has taken place through their agency? That it does take place we have the evidence of our senses to confirm, and here the mind alternates between the whence derived and the wherefore deposited in specific receptacles through which the insidious waters are passing—for pass they do, as no particle of matter throughout the vast fabric of the universe can for a moment be considered as stationary. If motion is the essence of life it is also a concomitant of death, and to it all changes must be referred, and, therefore, motion is essential both to the formation and dissolution of all complex bodies.

The term legitimate implies law, regularity, order, method, motion, and an intellectual observation, for without the latter it would lack a determining agency as to its functions and the effects. As applied to mining, its primary meaning is knowledge—first, as to the existence and nature of objects; and, second, as to the best means to be employed in rendering them subservient of useful and beneficial purposes. To warrant an expensive preparatory outlay there should be an intelligent and comprehensive outline of the objects it was proposed to compass and secure, both as to their nature and the conditions under which they are apprehended to exist, and also the results which are expected to follow the prescribed course of proceeding, and this implies a power of penetrating beneath the surface of things. From fact to fact reason proceeds, and conducts its attendants to acquisitions which at the outset appeared to be unattainable, and regions otherwise impenetrably dark are explored, and truths beyond the province of sense are brought to light, and indisputably established.

Knowledge to be efficient in relation to mining should, I apprehend, embrace first principles, for if there is not an approximately correct conception of these how is it possible to determine whether the exploratory methods and mechanical adjustments are of the best, or even of the proper kind, to accomplish with facility and economy the purposes intended? If we are wholly undecided as to the original source of the metals what can we know of the channels by which they proceed, and by parity of reason of the localities in which they are deposited? Rude guess work or presumption from apparent similarities is a very unsafe guide in this important department of practical mining.

Opinion implies a theory, and that again one or more facts upon which it rests; it is, therefore, clear that without fact there can be no theory in the proper acceptance of the term, and in the absence of theory no foundation for an opinion can exist. It thus becomes clear to my mind that if first principles are unknown or rejected no satisfactory knowledge respecting the process by which metalliferous minerals are produced can be arrived at; and if we are ignorant of this equal uncertainty must prevail regarding the precise localities in which such deposits are made; for this reason, that no relation is recognised between effects and causes; and in the

matter of metalliferous minerals it is only by adapting the a posteriori process of reasoning that the facts desired can be ascertained, to ignore which is, in my opinion, to propitiate ignorance and darkness respecting this important part of mining. ROBT. KNAPP, Llanrwst, Feb. 16.

THE PROVIDENCE MINES.

SIR,—In your Notices to Correspondents, in last week's Journal, reference is made to a communication from Mr. Trewicke respecting the management of these mines. I beg to state that Mr. Trewicke never paid a call, nor ever held a share long enough to receive a dividend. The following is a copy of all the transactions he has had in these mines:—On Oct. 18, 1859, he bought one share, which he sold on the 26th. On April 4, 1867, he bought one share, and on the 27th he bought three shares; on the last date he sold these four shares. On July 22, 1867, he bought one share, and sold it on Aug. 21 following—since which date he has had no transaction with the mines. What right has Mr. Trewicke to complain of the management of a concern in which he has no interest, nor been in any way connected for about seven years? It is certainly a most unwarrantable interference in other people's business.

The statement of accounts, with the reports of the committee and agents, issued at the late account meeting on the 26th ult., are considered most satisfactory; the financial position is good, the accounts being charged up to the end of December. A committee of gentlemen of well-qualified business ability, chosen by the adventurers, confer with and assist the pursuer and agents on all matters connected with the mines; and, as a proof of the satisfactory way in which the business is and has been conducted, the lords have given up all dues since the end of September, 1873.

As long ago as 1857 Mr. Trewicke began to disparage the mines under the late Mr. Higgs's purshership, as shown by the following copy of a letter of Mr. Trewicke:—

"DEAR SIR,—I find from Mr. Reid you have sent a confidential letter of mine to him. I pray do not exhibit it. I will make any apology you may deem necessary. Yours truly, THOS. TREWICKE, Junr."

No kindly feeling dictated Mr. Trewicke's interference with matters that then did not concern him, as well as the affairs of the Providence Mines recently. EDWARD TRYTHALL, Pursuer, Penzance, Feb. 17.

MINE ACCOUNTS.

SIR,—In the Journal of Feb. 6 a small paragraph informs us that the Providence Mines are in a very good position—not only as to prospects, but also financially, and that the costs of labour are charged up to Dec. 18, and credit taken for two sales up to Dec. 31. This is very satisfactory, for only 18 months have rolled into the past since these mines were in a most critical position. Ruin stared them in the face, but as in a storm the mariner cuts away the masts to right his ship, and throws overboard the cargo to ease her, so did the officials there curtail every expense, reduced the staff and official expenditure, did away with every superfluity, gave a fixed yearly salary to the agents, and by this and this only saved one of the oldest, and erewhile one of the most prosperous, of Cornish mines from disastrous suspension. This is a most notable example of successfully combating with an adverse tide, and the mining public has full confidence in Providence Mine, because everything is carried on in an open, honourable and straightforward manner.

In the Supplement of the Journal to Feb. 6, I also observe the reports of two other meetings. Both mines are managed with great skill, both have given large dividends, both have been satisfactorily worked for some years, both are situated in the richest mining district of Cornwall and the world, and possess almost inexhaustible supplies of mineral; but both mines seem, as far as accounts, and accounts only, are concerned, to be in a sadly unsatisfactory position. The costs in the one mine 10,714l., in the other 9949l., are charged up to the end of September, at least three months behind what they fairly and equitably should be if the tin sales were credited up to the day of the meeting. Therefore, the first mine, instead of a credit balance of 5000l., has a debit balance of 5000l., and its neighbour is in debt rather more than that amount. This is a startling fact, and must convince all that the policy is wrong.

Coming now to the reason put forward for this mode of working, they are that tin requiring, as it does, an extensive treatment or dressing, occupying a length of time from first to last, should not be charged against the current expenditure, but against previous cost. This justification is absurd; tin can be stamped and ready for the smelter in two weeks, and as the miners are paid two weeks behind, tin should not be credited after the date to which the costs are debited. Another reason is that the long time of depression warrants the placing of the accounts so to encourage the drooping spirits of the mine adventurers, knowing that when better times arrive the footing lost will be easily regained, but the policy is suicidal; the favourable time may never come, or may come too late. Another reason is, in the two cases I have in view, the immense quantities of tin in stock, in the enormous pile of sand leavings, which await only a higher price for tin and improvements in machinery to be rendered marketable at a large profit. The system adopted to catch the slimes is almost perfect, and assuredly the tin contained in these heaps is of great value; but it would be far wiser to let the present be judged alone, and to let everything be placed in its fair and equitable business aspect. I think few have more knowledge of their business than the manager of Tincroft and Carn Brea, and few have done more for mining, but the greatest men have great faults, have made great mistakes, and here is a practice which excites doubt and fear, and redounds to no one's credit, for if this is the case with the best mines of Cornwall, what must be the position of the worst? Mine merchants' bills are often paid six months or more after being charged or passed at the account meeting, although they appear settled for at the time of the meeting. This also gives a false colour to mining and deceives. Each bona fide adventurer in any mine has a perfect right to know at any time the exact position of the company, and if he suspects that anything is carried on as it should not be, has a right to examine the books and workings of the mine for himself, having the law, if necessary, to appeal to. In my opinion, the accounts of the different books should be entered regularly, the ledger posted monthly, and the books should be all audited by a public accountant unconnected with the mine, or should be all presented for inspection by the shareholders at the meeting. The Cost-book appears to outsiders very confusing, but most people understand a ledger or a cash-book. When this is done, when candour is the order of the day, when enquiry and examination is courted, and one is not "snubbed" for asking pertinent questions at mine meetings, then, and not until then, will that confidence in Cornish mines which of late has been rudely shaken be restored.

EXPERIENTIA DOCET.

SUCCESSFUL AND UNSUCCESSFUL MINING.

SIR,—Again I ask your favour to reply to "Ex Nihilo Nihil Fit." It appears he thinks of nothing, aims at nothing, effects nothing but compiling elaborate letters through which he may exhibit to the gaze of the mining public infallible Cornish mine agents. Now, I believe as good mine agents have emanated from Cornwall as the world ever produced, and in Cornwall to-day are to be found men of the right stamp, thoroughly practical and theoretical, discounting every attempt at illegitimate mining, carrying on the work assigned with equity and energy. Against these men I never did say a disparaging word, neither do I assert that all mines would be profitable if managed by such men, but take away the unqualified (a large proportion) from their ranks, and Cornish mining would enter a new epoch, as many losing concerns would be remunerative, thereby encouraging the adventurers to speculate and invest their money in developing other mining properties, and give them (probably) a larger percentage than railways, Consols, stocks, or bonds.

About "lack of intelligence and narrowness of observation" he hits wide of the mark. As my observations have not been limited to one particular district, but through the length and breadth of the two counties in almost every mining circuit, often practical, and not at all times has it been casual, I should rather think it a favour than otherwise to be interrogated about the source, &c., of the knowledge we have for the task.

Theory and practice, like faith and works, should go hand in

Bill." I am not a member of the House of Commons for the construction of a railway passing through the Wotherton property, and the chief landlord he refers to is, I presume, the Earl of Powis, who did, I believe, oppose the Bill in question, simply on account of the survey being taken through a certain district known as the Moat, and at the level shown on the plan submitted this particular spot is frequently flooded for three and four months in the year. Thanks I say, then, for the opposition. Now, is "Cambriensis" ignorant of a Bill having passed the House of Commons which received the assent of the House of Lords and Her Majesty in the year 1865, for the construction of a railway through the same district, only deviating a little in the particular spot objected to by the principal landowner in 1855? And this second Bill, although it was renewed, died a natural death for want of funds, the aristocracy of the neighbourhood neglecting or refusing to take up a sufficient number of shares to justify the promoters commencing the line in question. In conclusion, I must tell "Cambriensis," let him be who he may, it is not the traction engine that has damaged the four miles of road in question, but the increased traffic, owing to so large a body of barytes as that at Wotherton being found in the neighbourhood; and because the proprietors cannot get the produce of the mines off without carrying it over the roads, the clergy and magistrates of the district are straining every nerve to put a stop to the works by persecuting the owners of the traction engine in question, although they well know no other means of transit is obtainable. But the animus shown by the

CORNISH MINE SHARE MARKET.—During the week the share market has been quiet, without animation, and but little business has been transacted. The following are the closing prices:—Botallack, nominally 55 to 60; at the meeting a profit of 208*l.* was shown. Carn Brea shares duller, and declined to 48, 50; the recent improvement in the eastern part of the mine is said to continue good. Cook's Kitchen shares declined to 3, 3½, but there has not been much doing in them. Death shares declined to 47, 48, although there was no falling off in the mine. Ding Dong, called 6 to 7. East Pool shares have fallen to 11, 11½. East Lovell shares a little enquired for, at 5 to 7. Providence steady, at 5 to 5½; South Conduvor shares lower, at 4½ to 5. South Crofty shares rather more enquired for, at 8½ to 9½, before the meeting, when a 20*l.* call was made; the loss on the quarter was only about 530*l.*; a branch of tin 1*ft.* wide has been intersected in the north cross-cut. South Carn Brea shares enquired for, at 19s. to 21*s.* 8*d.* Ives Consols shares also in request, at 2½ to 3. Rosewall Hill, 6*s.* to 6*s.* 8*d.* South Frances, nominally 8*s.* 6*d.* Trumpton Consols, nominally ¾ to 1*s.* Thincroft shares, declined to 25 to 26. West Basset shares, called 7 to 7½. West Seton, called 7 to 8; at the meeting, on Tuesday, the balance against the mine was 173*s.*, and a call of 3*l.* was made; it was resolved to erect an engine. How much better and much cheaper it would have been for them to have purchased a Wheel Seton engine, and so have prevented the inundation of both mines, may be now readily perceived. West Frances shares keep firm, at 10 to 10½; the rich lode recently cut in the 144 is not yet cut through. West Tolgus, 68 to 67; Wheel Kitty (St. Agnes), 4½ to 5½. Wheal Jane, 5 to 5½. Any shares lower, at 2½ to 3*s.* A little has been done in Fowor shares, at 5 to 5½, and in local shares, at 5 to 6. The result of the Great South Wales sale, on Wednesday, and the result was considered highly satisfactory. Butte Wood Consols, the once famous and highly profitable mine—some time abandoned—is petitioned against by Mr. J. Walter Tyaque, of Helston, to be wound-up in the Vice-Warden's Court.—*West Briton.*

The CHAIRMAN said that was his belief that in six months' time the mine would pay, and more than pay, its expenses. He was about to take a very bold policy, which was simply this—he would ask is this a mine that you would give up working and hand it over to someone else? He concluded from the silence of the meeting

ing that the shareholders did not intend to give up this property just as it was on the eve of paying simply because a sum of about 20,000l. was required for its working. The difficulty with respect to the debentures was this—that it took the whole security from anybody who had previously trusted the company, and it was necessary that the whole amount should be taken up; but the scheme he was about to submit was one which would not take the security from the traders—it would not be a mortgage of the mine. The amount necessary would be raised in small sums; in fact, they proposed to raise by means of preference shares the sum of 20,000l., in shares of 2l. each. It was proposed that 5s. per share should be paid on application and 15s. on allotment. The remainder of the capital to be called up in sums not exceeding 5s. per share, at intervals of not less than two months, option being reserved to subscribers of paying the whole of the instalments on allotment. Interest will accrue on the instalment from date of payment at the rate of 10l. per centum per annum. A further 10l. per cent. per annum preference dividend will be paid from the profits of the mines, and the preference shareholders will divide all further profits *pro rata* with the original shareholders, until the preference shares are paid off, after giving three months' notice, at 20l. per cent. premium. The interest will be paid half-yearly. Some of the shareholders had written to say that they would take up some of these shares and pay up in full. The directors were prepared to take fully their proportion; indeed, they would take more than their share, and they asked the shareholders to help them and put their shoulders to the wheel, for by doing so he believed the original or ordinary shares would become more valuable on the market, as these shares were really and truly increased in value. If the company were wound up very little, if any, thing, would be returned to the shareholders, and someone else would readily avail themselves of possessing a property that would become self-supporting in less than six months.

A SHAREHOLDER asked whether the Messrs. Williams, the bankers, who were interested in the formation of the company, had applied for any of the debentures. The CHAIRMAN had hoped the Messrs. Williams would have assisted the company by taking a few of the preference shares, as they had a great number of the ordinary shares, and were the vendors of the property, and largely interested in it, but he was sorry to say they did not propose to take one of them.

Sir CHARLES WINGFIELD said it would be madness to allow the company to go into liquidation. It would be an altogether unprecedented act to wind up a company possessing a mine which was turning out 300 tons of copper ore per month, and which they were told, and he believed would, by the expenditure of a few thousand pounds would in a few months pay its own expenses, and leave a surplus. Therefore, he did hope that an effort would be made to raise this money. Personally he had subscribed towards the debentures for nearly the full amount of the shares he held, and he regretted that scheme had not been carried out, because he looked upon it as a good investment. The value of the machinery alone it was quite clear was more, considerably more, than 20,000l. The Chairman offered very advantageous terms to those who took the preference shares, but not more advantageous than they should be, because those who took the shares really came forward to save the company from ruin. He should be prepared to take his proportion of those shares, and he hoped other gentlemen would do the same. He imagined that this scheme of preference shares had the advantage that only so much capital would be called up as required, the uncalled capital gave the chief creditor a certain degree of confidence. He hoped the scheme would be supported.

The CHAIRMAN said that another advantage of the preference share scheme was that it would not be necessary for the whole of the shares to be taken up. Supposing one-half of them were taken up they would not try the market; it was rather too expensive a plan. But if any of the shareholders had friends who desired any of these shares they could easily have them by applying. If they were to meet their expenses in six months he did not apprehend there would be any difficulty in placing the balance if it were wished to do so. The preference shares by the terms proposed would receive in the last year 40 per cent.—10 per cent. interest, and before paying off there must be a profit of 10 per cent., and when paid off a premium of 20 per cent. He then proposed the resolution which he had already submitted.

Sir CHARLES WINGFIELD seconded the proposition, which was put and carried unanimously.

The CHAIRMAN said it would be necessary for two special meetings to be held to alter the Articles of Association.

A question arose as to whether the preferential interest should be accumulative, and it was decided that it should be so.

The CHAIRMAN said that since the last meeting Sir Charles Wingfield had consented to join the board—and it was advisable for the meeting to confirm it, when a resolution to that effect was unanimously passed.

Mr. HEADLEY (a director) said that he would take from 1200l. to 1500l. worth of the preference shares.

The CHAIRMAN said that his colleague was a larger shareholder than himself, but he had always said that he would take equal to one-half the amount taken by Mr. Headley.

A SHAREHOLDER said he had already taken 100, and after the statements he had just heard would take another 100 shares.

Several other shareholders signified their intention of taking their proportion of the preference shares.

A vote of thanks was passed to the Chairman for the able and exhaustive statement he had made of the position and prospects of the mine, and to the directors for their continuous attention to the interests of the company. The meeting then separated.

ST. AGNES CONSOLS MINING COMPANY.

At a special meeting of shareholders held at the London Tavern, Bishopsgate-street, on Tuesday, for the purpose of considering a resolution involving an increase of capital.

Mr. JOHN B. REYNOLDS in the chair.

The CHAIRMAN said: I never met the shareholders in this mine with greater satisfaction than I meet them to-day. You are aware that for some years past I have been most active in my endeavours to strengthen this company, and to promote its interests; but we have had a great deal of work to do, which I am sure must have tried the patience of many of the proprietors, especially as mining has been so depressed. But concerning the whole body of shareholders, I must say that greater unanimity, and, as far as I know, greater satisfaction, has not existed in any company which has come under my notice. For this patience you will be, I think, repaid—for the tenacity with which the shareholders have held on their interest they will be amply rewarded. You are aware that when we formed ourselves from a cost-book into a limited liability company we started with the assumption that we had only two lodes on which we could work within our limits—the Wheel Rock and Wheel Kitty main lode. We were, of course, aware that the latter had turned out to be very productive in the adjoining mine, but we did not know that we had another Wheel Kitty lode passing through our set which at a former working made a profit of 80,000l. It has, however, recently transpired that we are the possessors of both those lodes, and we unexpectedly find in our engine shaft the lode with the permission of the mine, we are now close upon it, in compliance to our estimable managers, one of whom—Capt. William Vivian is here to-day, and we have found that that lode contained a considerable degree of muddle, and presented the same indications as the lode in Wheel Kitty under similar circumstances. The shareholders have had notice of the cutting into of that lode. Our excellent managers lost no time in opening it up, and they have been engaged with that work for some few weeks, and we received at the office last Friday a communication from Capt. Wm. Vivian to the effect that in consequence of a change in the country rock they thought they were close upon a bunch of tin. On Saturday they sent a telegram to the effect that they had absolutely cut a good lode, and yesterday morning they sent a full report, stating that they had cut the tin, worth from 10l. to 12l. per fathom, which I suppose is about the average value of the lodes in Wheel Kitty; and they also stated in that report that they considered the lode would still further improve. Gentlemen, that report was immediately put into the printer's hands, and every shareholder has before this had a copy of it; but the other Wheel Kitty lode, for the cutting of which we started the company, has not yet been met with, and will not be until the expiration of about six or seven months, so that we shall have two very profitable lodes, as we fully expect, from which we shall be able to divide our profits. I should be very sorry to lead our shareholders astray, and will, therefore, not anticipate the probable amount of profits which we may reap. The shareholders can go into those particulars themselves if they like, and they can come to as correct conclusions as I could possibly do; but suffice it to say that the country rock is of the same description as that found in Wheel Kitty, and that the indications in our set are of the same character as those in the adjoining mine, have been decidedly against us, and they have made a difference of something considerable per cent., and, therefore, to a certain extent we were out of our calculations as to the amount of capital which would be required to test the property. We find, however, that we have been fortunate in so nearly attaining our object, but now we have come to a point in the company's history which requires us to make an immediate and further outlay. We want a drawing-engine; we want stamps to prepare our tin, and some other appliances, which will cost us some 4000l. We may not want so much, but we think it is likely we shall, and your directors have given the matter their most earnest consideration. We have remembered that there are shareholders in this company who have waited some years without having any return at all for their outlay, and as we offer the new capital to our present proprietors, we have thought that it would be well to make the terms as liberal as we could. It has been suggested that our terms are unreasonable, because they are somewhat extravagant; but those gentlemen are not acquainted with the nature and risk attending mining industry, and they lose sight also of the fact that at the present moment mining shares are at a considerable discount, and they somewhat lose sight of the fact that it is much more to our interest and much more in our favour to limit the interest on the new stock to be issued than to issue new ordinary stock. Now, there has been another statement made to me to this effect, that it would be desirable to have the option at the termination of five, seven, or ten years of calling in this 10 per cent. stock, which we think we could easily do out of the profits of the company, and this has been expressed by one of our largest proprietors in the strongest terms. I have not had an opportunity of consulting my colleagues as to this proposed alteration, but I wish for there to be a free discussion here to-day, which shall ultimately lead to an unanimous vote. The resolution which I have to submit to you will be this—"That the capital of the St. Agnes Consols Mining Company (Limited) be increased by the issue of 500 new shares, of 5l. each (4000l.), bearing a guaranteed interest at the rate of 10 per cent. per annum, and that the said shares be offered to the members of the company in proportion to their present holding." The resolution will be seconded by my most excellent colleague, Dr. Brookhouse.

Dr. BROOKHOUSE: Mr. Chairman and gentlemen,—When I came here this morning I was unprepared to hear what my friend Mr. Reynolds has already told you, beyond the information that some discovery had been made in the property in the last few hours. I think we may, after all, fairly congratulate ourselves upon the financial position of the company. The prices of labour and materials have advanced, and the price of tin has considerably declined. It is merely a question with reference to the manner of the increase of capital. I originally suggested the scheme as presented by the Chairman, and think it is only fair to those who have borne the burden and heat of the day that they should have the benefit of some, therefore, would be glad to second the resolution.

The CHAIRMAN: Now it is for the shareholders to make any remarks they wish.

Mr. BUDD would like to ask a few questions: At the last annual meeting there

was a considerable amount of arrears of calls outstanding. What amount of that had been since paid? He thought it very right that the present shareholders should secure to themselves any benefits arising from the issue of the new capital, considering they had waited so long. How were those shares to be issued? Were they to be redeemable at par at any time the company might like, or at 10 or 15 per cent. premium? He should support the resolution.

A SHAREHOLDER: With regard to the proposition of 10 per cent., if it is carried it ought to be with some purpose of redeeming it. If the mine is to be a wealthy one it can, probably, be arranged with some small premium. I shall be perfectly content to leave this in the directors' hands, but there must be a power of redemption.

The CHAIRMAN: I will reply to all the enquiries together at the close of the meeting when the proprietors have had the advantage of making any remarks they may desire. As far as the directors are concerned we are only wishful to serve the interests of the proprietors. The shareholders must have notice of any resolution. This is the only resolution that has been submitted. We will call a fresh meeting, if of sufficient importance, for the consideration of the proposition suggested by our friend to the effect that this stock shall be redeemable at the end of seven or ten years, and at a premium of 10l. per cent.

The CHAIRMAN: Does the proprietor think it of sufficient importance?—The SHAREHOLDER: I think it is.

Mr. BUDD: I think it is of sufficient importance to have an alteration at all to have it at 10 years.

The CHAIRMAN: Is the first that if we alter this resolution we shall have to hold two more meetings—the first to propose the amended resolution, and the second to confirm it.

Mr. BUDD: In case all is not taken up I suppose you will issue the other for the option of other shareholders.—The CHAIRMAN: That is the usual custom.

Mr. BUDD: You would issue it *pro rata*. Perhaps our friend would move an amendment.—The CHAIRMAN: If he would move an amendment I think that would be the best, adding in it that the stock should be redeemable at 10 per cent. premium at the end of seven or ten years.

A SHAREHOLDER: I propose that these guaranteed shares be accepted on the proviso that they be payable off at the discretion of the company at the end of seven or ten years, and at a premium of 10 per cent.—Capt. Wm. VIVIAN: I beg to second that.

The CHAIRMAN: Now, gentlemen, I shall put the amendment first, if it is carried we shall have two more meetings; if not, only one.

The amendment was put and carried.

Mr. BUDD: What was the nature of the discovery?—The CHAIRMAN: Capt. Vivian will be able to answer your question.—Capt. W. VIVIAN said the lode has been discovered about three or four months.

The CHAIRMAN: In reply to questions, said the total amount of calls due now is about 600l., and that amount will be duly paid. The only liability by way of bills receivable in this company is an amount of 1000l., paid on account of calls, and that bill is as good as a Bank of England note. This, I am sure, will be satisfactory to the shareholders. Calls more promptly paid up I never knew in any company. The capital we have is all spent, and thus our meeting to-day. The other question I need not answer. We shall be glad to raise it on the terms resolved upon by you to-day. I am sure you would like to hear Capt. Vivian make a statement.

Mr. BUDD: Can you inform us how you intend of raising the surplus stock?

The CHAIRMAN: We shall call the next meeting as soon as possible for the consideration of the amended resolution, which will be accepted unanimously I have no doubt.

Capt. W. VIVIAN: Well, gentlemen, I do not know that I can say anything more than has been said. I am happy to say that we have an improvement, and I think it will be a lasting one. I am very happy to meet you to-day, and under such favourable circumstances. I shall be happy to answer any question any gentleman wishes to ask.

The CHAIRMAN: I should be very pleased for Capt. Vivian to explain the character of the rock through which we have to sink our shaft?—Capt. W. VIVIAN: Well, it is very hard, and has all to be blasted. If we had continued to use powder we should not have done nearly so much work, but we find that dynamite answers better. This lode recently cut we did not calculate was in our set, we thought it had gone away north, so that now we can calculate where we are. I think the lode is a prize. It made 80,000l. in Wheel Kitty.

Dr. BROOKHOUSE: Where is the improvement in the lode which is worth from 10l. to 12l. per fathom? Is it towards the Wheel Rock lode, or south and west?—Capt. W. VIVIAN: It is nearly 20 fms. to the south of the Wheel Rock lode; this improvement is to the south of the shaft.

Capt. Wm. VIVIAN: We commenced to drive west, and have driven about 2 fms. west. The change was precisely the same there as in Wheel Kitty. We do not blast the lode every day, we go on by the side of it. I found last week that the country rock, as in Wheel Kitty, was congenial for tin. On Friday I ordered the men to blast this lode, and on the evening of that day they came up and said they had cut it good. From the present appearance of the lode I have every reason to expect it is a very important improvement, and I have no doubt we shall find it as rich on the south as at the west. This lode was worked by the former workers. It was thought that it was further to the north, but at the south-west we found we had got it.

The CHAIRMAN: Gentlemen, the meeting is now at an end, and I thank you for your presence here to-day, and the interest you have taken in the proceedings.

Dr. BROOKHOUSE: We cannot separate without a vote of thanks to the gentleman in the chair, whose time and interests are devoted to the service of the shareholders.

I think he is entitled to our confidence in every possible manner.

Mr. HAINES had much pleasure in seconding the vote of thanks.

Mr. BUDD: Allow me to support that. I happen to be a near neighbour of the Chairman, and from personal knowledge was induced to take a few shares. I, therefore, have the more interest in supporting this vote of thanks. No one knows Mr. Reynolds' private worth, perhaps, better than I do.

The CHAIRMAN: I am much obliged to you gentlemen, and I hope that you have in me merely a weak and unworthy devotion to your interests, and who is prepared to make any sacrifice in favour of the company. But you have the same qualifications and characteristics in my colleagues, and all others associated with me in the management of the mine.—The proceedings then terminated.

THE LOVELL MINING COMPANY.

The adjourned general meeting of shareholders was held at the London Tavern, on Feb. 13.—Mr. GODDARD in the chair.

The minutes of the proceedings of the meeting (of which the present was the adjournment) having been submitted.

The CHAIRMAN said that although Mr. Sharp had not yet possession of the books, a satisfactory arrangement would be made for all parties, and there would be no difficulty about the matter.

Mr. BIDDER said that Capt. Nancarrow had expressed a desire to give explanations to the meeting, and it would only be fair to allow him to do so, as to the mine itself, himself, or as to his conduct in connection with the mine.

Capt. NANCARROW then explained at some length the leading features which had been developed in the operation of the mine.

Mr. BIDDER asked how far it was from the opening of the shaft to the surface to the extreme eastern ground?—Capt. NANCARROW: Some hundreds of fathoms. In reply to further questions, he stated that eastward they were driving in whole ground, and there were 4 fms. west, which went beyond the boundary. In the westerly end only a small part of the lode was carried, but the eastern end was entirely in the Lovell set. There was a good lode in the end, worth 50l. per fm. for the width of the lode—15 feet. The whole width of the lode was carried, and cost 25l. The lode itself was in the upper end in the 12, going westward towards the new ground, the lode was not worth anything, and the 30 had only been driven a few fathoms when the lode cut out. At that time he saw nothing to justify him recommending the purchase of the adjoining ground, inasmuch as the tin was not going into it. They would have been called fools, and said to have been wasting the shareholders' money. The position and prospects of the adjoining ground was no secret, agents were often underground, and people in the district, who were fully alive to their own interest, would have purchased it if they had thought it worth anything.

Mr. BIDDER asked if the lode was not good at the bottom of the shaft, and that the shaft was continuously sinking towards the boundary?—Capt. NANCARROW said that at the bottom of the shaft the lode was good, but it was not the question of the shaft, but that of the direction of the tin ground.

Mr. BIDDER then read extracts from Capt. Nancarrow's report of March, 1873, in which it was stated that the shaft had never been so good, or so likely, to continue as it was then, and asked Capt. Nancarrow if it was not at that time his intention to continue sinking the shaft, which was 8 fathoms within the boundary, and the lode underlying rapidly towards it? And was it not clear at the shaft must cross the boundary?

Capt. NANCARROW said the lode was continually shifting its underlie, and the shaft being sunk on its course it would have to be followed, whether it dipped to continue as it was then, or whether it was not a regular lode in the sense of other lodes, sequence retired. Again, this year, when the company was in circumstances of great hardship, a dead-set had been made against it. He alluded to a contract with the Messrs. Peace, which, after remaining for a good while, and Messrs. Peace not selling the stone, was cancelled. During that time the company was paralysed. Afterwards, when they were beginning again to turn themselves round, the Darlington section of the North-Eastern Railway took proceedings against them for 4000l. Mr. Johnson paid 1000l. (he Mr. Spark) 1000l., and the company agreed to take debentures for the other, but on account of some delay in giving the debentures the North-Eastern Company put an execution in. After explaining Mr. Bryer's action, the Chairman said he had placed his resignation in the hands of the company as Chairman during last September, but they had refused to accept it. He wished the company, however, to reconsider its decision. He had no doubt that if the shareholders worked energetically together they would pay 20s. in 10s. or more. He then proposed a formal resolution for the voluntary winding-up of the company.—Mr. HUSBAND seconded the resolution, which was carried.

Mr. R. S. FRASER, of London, then referred to the recent law proceedings, and the connection of Mr. Bryer with the company. Mr. Bryer, who had 1700l. worth of shares, wished to throw his own money away, and also 42,000l. which belonged to other shareholders, by the course of action he was taking, which, in all his knowledge of public companies, he had never seen equalled. He spoke of the inefficiency of the early management of the company, of the loose way in which contracts were made, and of the unsatisfactory mode in which the quarries were worked. The leases, especially of limestone, were of the most valuable description. The railway was well made, and made, on the whole, at a cheap rate. Notwithstanding the large amount of money which had been wasted, such was the quality and quantity of stone that, if the shareholders properly developed the property, a good dividend might be realised. He proposed a resolution for the reconstruction of the company.—Mr. THORNTON seconded the resolution.

Mr. DIXON, Skeiton, asked if there had not been an offer made to the company of leasing the whole of the works which would pay 3 or 4 per cent. to the original shareholders?—The CHAIRMAN said it was possible such an offer might be made if no satisfactory settlement was arrived at.

Mr. H. C. BRIGGS, Ironmaster, Saltburn, reviewed his former connection with the company, and entered into a defensive explanation.

The CHAIRMAN then proposed "That Richard Samuel France, Stephen Wilson, George Close, and H. K. Spark be appointed a reconstruction committee."

The resolution was seconded and agreed to.

Mr. R. S. FRASER moved a resolution to the effect that the Vice-Chancellor be asked to appoint a liquidator to act in the voluntary winding-up, and that such person be wholly unconnected with the company and the late proceedings against

by saying that "this is the finest course of tin he (Capt. Nancarrow) had ever seen at the depth, and there was the greatest prospect of having a large and permanent mine."

Capt. NANCARROW said that although the tin was going down it was going in to the Lovell Mine, and there was no indication of it going westward.

Mr. GREENE asked if any of the other shareholders knew of the importance of this? Did Mr. Sharp know of it?—Mr. SHARP replied in the negative, adding that he did not know which way the shaft was going. He had never been down the mine, and until very recently was not aware but the shaft was perpendicular.

Capt. NANCARROW said it was not a question which way the shaft was going, but which way the tin was going.

Mr. BIDDER said they had better leave in the committee's hands the management of the mine, and suggested the committee should have power to add to their number. As he thought it probable that some shareholders might be found who would be able to give valuable assistance he proposed a resolution to that effect.—Mr. BIDDER seconded the proposition, which was put and carried unanimously.

After some further discussion, Mr. Chapman having handed to the committee the books of the company, it was resolved that the secretary should forward to the shareholders a statement of accounts as soon as possible.

A vote of thanks to the Chairman closed the proceedings.

MID-MOONTA COPPER MINING COMPANY.

A general meeting of shareholders was held at the Cannon-street Hotel, on Wednesday.—Mr. CHARLES MORRIS in the chair.

Mr. P. HENRY POPE (the secretary) read the notice convening the meeting.

The report of the directors stated that it was found necessary to close all operations for the past nine months, hence they cannot present so favourable a report as they had good reason to anticipate at the last annual meeting they should have been in a position to do. At the time when the mine gave abundant evidence that it was a very valuable one proceedings were instituted in the law courts of Adelaide by the person of the name of Whittington and Dalwood, to obtain possession of the company's property at Mid-Moonta. Whittington (the person from whom the property was originally purchased) had, it would seem, sustained some losses through the people with whom he negotiated the sale; with these transactions the company's possession of the property he had sold. The suit was compromised with a view of saving any further expenditure, as in the event of continuing the proceedings there would have been considerable difficulty in obtaining the costs. The expenses incurred by the company in this action amount to 771l., and the directors have consented to deduct 143l. from the amount of their accounts. They have further agreed to accept 341l. in fully paid-up shares, provided that the operations of the mine are recommended within a reasonable time.

The finances of the company have been so crippled by this litigation that it has been found necessary to suspend mining operations for the present. It was confidently expected that when the action was concluded many of the colonists would have invested in the enterprise. Such an assurance was repeatedly given by the manager, Mr. Harvey; and, further, the many indications the mine had given of its very considerable value, and the fact that the geological formation of the property is precisely similar to some of the richest mining districts in Australia, gave reasonable grounds for believing that the shares which remain for issue would have been largely applied for in and around the country where the mine is situated. It appears, however, that, owing to the fears considered by the various strikes which have occurred, and the heavy losses which have accrued from over speculation in the gold mining districts, a few only are either able or willing to invest in mining property.

Additional capital is, therefore, necessary to carry on the works to a profitable issue, and to prevent the loss of that which has already been expended. For this purpose from 500l. to 1000l. are necessary, and it is believed sufficient. To obtain this the managing director appeals to the English shareholders. A proposal has been made to issue 8000 (8l.) shares, to be paid in calls of 1s. each every two months. It now remained for the shareholders to decide whether they would resume, with increased energy, the operations, in which much time and money have already been expended—operations which have proved the property to be one of an exceedingly rich and valuable character—or whether it shall be allowed to pass, a doubtless considerable sacrifice, into the hands of others, an alternative which we are most anxious to avoid.

The CHAIRMAN said he had but little to add to the facts set forth in the report, from which the state of the company must be apparent to each shareholder. The fact was they must on this occasion take into consideration whether they would find a little more capital for the purpose of testing the mine, and not let it go into the hands of other people, who would profit by what had been done by the present shareholders. Something like 1000l. would be ample for the purpose of testing whether the mine was really worth thorough development, and he could not help thinking before that amount had been expended such discoveries would have been made as to justify the expenditure, and the mine placed in a state of great prosperity. The probability was that if upon the present occasion it should be agreed to subscribe the 1000l. many of the shares would be taken up in the colony, where the impression was very general that the property could be made permanently profitable. He then moved that the reports and accounts be received and adopted.

Mr. H. W. WHITE seconded the proposition.

A SHAREHOLDER said they were very much in the hands of their representatives in the colony, and asked what assurance they had that things were precisely as represented?—The CHAIRMAN said he had perused the report of the meeting held in the colony, from which it did not appear that the shareholders were at all dissatisfied with the way in which the mine was being conducted, although they were so with the expenses of management. That seemed to be the principal cause of discontent.

A SHAREHOLDER said the law charges in the colony appeared very heavy, and enquired why the judge who stigmatised the proceedings as unjust allowed the costs?—Mr. STUART (a director) said there was no chance of getting the costs paid and proceedings been taken and a judgment obtained.

The CHAIRMAN, in reply to a question, stated that the directors would be very glad if a board could be appointed in the colony.

Mr. P. H. POPE (the secretary) said that the solicitors in the colony had agreed to take 341 shares in payment of a proportion of their costs, provided operations were continued at the mine within a reasonable time.

Mr. CAMPBELL said that was an evidence of what was thought of the property in the colony if properly worked.

The CHAIRMAN said that Mr. Dutton, the agent for the colony, had told him he had a very good opinion of the mine.

Mr. CAMPBELL said that nothing could be more favourable than the indications.

The SECRETARY, in reply to a question, stated that 2500 of the first issue of shares had been paid in full, and of the second issue 441 had been allotted, upon which 110l. had been paid on account of them.

Mr. CAMPBELL said there was no doubt the colonists would pay up if they saw it likely that the mine was going on. He was prepared to take 50 shares, and he had been given to understand that an influential shareholder had signified his willingness to take 100 shares. Already one-fourth of the necessary number had been taken. The report and accounts were received and adopted.

A discussion took place, which resulted in the adoption of a recommendation that a circular should be forwarded to each shareholder, inviting subscriptions towards the necessary additional capital.

A vote of thanks to the Chairman closed the proceedings.

THE MERRYBENT MINING AND RAILWAY COMPANY.

A meeting of shareholders was held in the Central Buildings, Darlington, on Tuesday.—Mr. H. K. SPARK presiding.

The notice calling the meeting stated that it was for the voluntary winding-up and re-construction of the company.

The CHAIRMAN stated that the object of the meeting was in reality for the reconstruction of the company. The voluntary winding-up was preliminary to that operation. He then gave a history of the company, and said that an amount of ill-feeling had been exhibited towards it, even from its commencement, by certain parties, which had disgusted Mr. Briggs, Mr. Allan, and Mr. G. Leeman, M.P., who had in consequence retired. Again, this year, when the company was in circumstances of great hardship, a dead-set had been made against it. He alluded to a contract with the Messrs. Peace, which, after remaining for a good while, and Messrs. Peace not selling the stone, was cancelled. During that time the company was paralysed. Afterwards, when they were beginning again to turn themselves round, the Darlington section of the North-Eastern Railway took proceedings against them for 4000l. Mr. Johnson paid 1000l. (he Mr. Spark) 1000l., and the company agreed to take debentures for the other, but on account of some delay in giving the debentures the North-Eastern Company put an execution in. After explaining Mr. Bryer's action, the Chairman said he had placed his resignation in the hands of the company as Chairman during last September, but they had refused to accept it. He wished the company, however, to reconsider its decision. He had no doubt that if the shareholders worked energetically together they would pay 20s. in 10s. or more. He then proposed a formal resolution for the voluntary winding-up of the company.—Mr. HUSBAND seconded the resolution, which was carried.

Mr. R. S. FRASER, of London, then referred to the recent law proceedings, and the connection of Mr. Bryer with the company. Mr. Bryer, who had 1700l. worth of shares, wished to throw his own money away, and also 42,000l. which belonged to other shareholders, by the course of action he was taking, which, in all his knowledge of public companies, he had never seen equalled. He spoke of the inefficiency of the early management of the company, of the loose way in which contracts were made, and of the unsatisfactory mode in which the quarries were worked. The leases, especially of limestone, were of the most valuable description. The railway was well made, and made, on the whole, at a cheap rate. Notwithstanding the large amount of money which had been wasted, such was the quality and quantity of stone that, if the shareholders properly developed the property, a good dividend might be realised. He proposed a resolution for the reconstruction of the company.—Mr. THORNTON seconded the resolution.

Mr. DIXON, Skeiton, asked if there had not been an offer made to the company of leasing the whole of the works which would pay 3 or 4 per cent. to the original shareholders?—The CHAIRMAN said it was possible such an offer might be made if no satisfactory settlement was arrived at.

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concession has been granted for the working of the stratum, and will form the nucleus of an important branch of industry in the locality.

Progress is again reported of the movement to furnish the markets of the North Sea ports with increased supplies of Westphalian coal on advantageous terms. The Hanover State Railway authorities have now notified their intention of making a corresponding reduction of the tariff on their lines for coal destined for Bremen to that already conceded by the management of the Cologne and Minden Railway—one-half the 20 per cent. advance. It is confidently expected that almost immediately an average daily sale in the Bremen docks of 300 to 400 tons will be chronicled. The Cologne and Minden Railway management has further exerted itself to meet the wishes of the pit owners, and three extra trains per week to Bremen have been arranged for. Greater difficulties are anticipated in extending the demand in Hamburg than in Bremen, but, nevertheless, two extra trains per week for the former port are to be run forthwith, and should the off-take in Hamburg, Altona, and Kiel increase in an encouraging ratio, four trains per week are promised. The tariff for coals to Berlin has also been reduced, and an increased demand from this quarter is expected.

MINING IN AUSTRALASIA—MONTHLY SUMMARY.

The advices received from South Australia to Jan. 2 are decidedly favourable; several important improvements have taken place, and the mines without exception are looking well.

KURILLA.—A third vein of ore has been cut. The new lode is improving in depth, and making, although only 9 fms. deep, remunerative "ground." The men have cut the same lode with rich blue and green ore 8 fms. west of the first trial shaft, at 6½ fms. deep. They have also cut it at 3 fms. deep 10 fms. further west, with every promise of ore for a little deeper sinking, thus tracing the new lode to a distance of 15 fms. with most encouraging results. At the 25 fm. level, at the bottom of Deebie's shaft, the men, in cutting a plat, blasted up from the bottom of the drive some extremely high quality ore—30 per cent. or over—yellow sulphuretted, coated with black oxide. The engine has forked the mine, and its speed is now reduced to the quiet water-course of about six strokes per minute.

DEVON CONSOLS.—The prospects are exceedingly good. Hosking's shaft is now getting near the 35 fm. level. There is a strong lode in this shaft, 4 ft. wide, interspersed with ore throughout. The new discovery on the Kurilla is looking well, being a valuable lode of green and grey ore opened up on the surface—near 30 fms. in length. The new engine-shaft is now down 10 fms. 3 ft. They have now about 70 tons of ore on the floors ready for sampling.

HAMLEY.—Every part of the property looks well, and the floors are crowded with piles of fine metal. There are at grass heaps of ore varying in percentage from medium to high, but many of them averaging 25 per cent., of the aggregate value of 70000, and with no probable diminution in the yield from the mine, but rather with every prospect of increased production.

WALLAROO.—A discovery which may prove of the utmost importance to the prosperity of this mine and of the district was made a few days ago in finding a new lode in the most western section of the leasehold property. The discovery was made by a boy named Varcoe, in raising limestone for building purposes, the back of a lode of green and grey ore having been struck by him 2 ft. from the surface. The boy, not by any means ignorant of the importance of his discovery, immediately apprised his father, a miner on the Wallaroo. Mr. Higgs, superintendent of the mine, was made aware of the fact, and without delay men were put to prove the ground. As the men continue to sink there is every reason to believe that a valuable discovery has been made. Some of the ore is very rich, ranging from 30 to 40 per cent. The lode appears to bear east and west, as all those of the Wallaroo Mines do, and may lead to the opening up of an entirely new mine, as also the opening up of some five lodes to the eastward at present out by a cross-course.

MOONTA.—The directors have declared their 47th dividend, but this time it is only 5s. per share, being the lowest dividend ever declared by the company. An explosion of pent up air occurred in Hughes's shaft, by which three men were injured. They had not (Dec. 18) sampled any ore for the past fortnight, but there is a good probability that the pit will be ready for the early part of next week, and they would have about 60 or 70 tons more by the end of the month. They have put in a temporary appliance for dressing some of the roughest stone, which will be put to work on Monday, and should it answer the purpose for which it is intended to have 20 or 30 tons marketable by the end of the year.—*South Australian Register*, Jan. 2.

SLICKENSIDES.—Our contemporary, the *Wallaroo Times*, in a recent issue expresses an opinion that the late explosion at Hughes's shaft, in the Moonita Mine, was not due to the ignition of lithofracture, and suggests that the mischief was attributable to slickensides, which he says is a species of galena. Now, in the first place, slickensides is not a species of galena; and, in the second place, if the explosion was not due to lithofracture it certainly was not to dynamite, which essentially is identical with lithofracture, both having nitroglycerine for their base. With respect to slickensides, Sir Charles Lyell gives the following explanation:—"The opposite walls of vein are often beautifully polished, as if glazed, and are not unfrequently striated or scored with parallel furrows and ridges, such as would be produced by the continued rubbing together of surfaces of unequal hardness. Those smooth surfaces resemble in appearance the rocky floor over which a glacier has passed. They are of common occurrence even in cases where there has been no shift, and also occur equally in non-metalliferous fissures. They are called by miners by the name of 'slickensides,' from the German *schlichten*, to plane, and *seite*, side." As to the cause of the explosion, we may state that one of the pure who worked in Hughes's shaft at the 200 fm. level, about two years ago, has admitted that on discontinuing operations there a package of dynamite was left on the very ledge of ground that was being bored when the explosion took place. Of course, the inference is that the heat and moisture of the air in the shaft caused the nitroglycerine to exude from the package and find its way into the interstices of the rock, where it formed a very effective charge, awaiting only the application of a spark from the drill to cause its explosion.—*York Peninsula Advertiser* of December.

AUSTRALIAN MINES.

PORT PHILLIP AND COLONIAL (Gold).—Dec. 29: Quantity of quartz crushed for the four weeks ending Dec. 2, 3011 tons; pyrites treated, 15 tons; total gold obtained, 798 ozs. 16 dwts., or an average per ton of 3 dwts. 5 grs. Receipts, 50700. 6s. 10d.; payments (including 133, paid for firewood), 28680. 19s. 1d.; profit, 2040. 6s. 9d., which added to last month's balance of 14662. 8s. 10d., made an available balance of 16704. 10s. 7d., which was carried forward to next month's accounts.—The directors have received the following telegram, dated Melbourne, Feb. 6: Month ending Jan. 26: Yield per ton 4 dwts. 7 grs.

ANGLO-AUSTRALIAN (Gold).—Capt. Raisbeck, Dec. 30: I have the honour to report progress since the 1st inst. We have extended the east drive at the 320 ft. level 23 ft.; present distance from shaft, 61 ft. We are passing through a strong country, with a heavy pressure of water to contend with. There is 100 ft. of water in the ground above this level, but, by taking it gradually as we proceed, we can cope with it with very little inconvenience. There are four men working in the drive continuously. Mr. Vivian has finished the contract for the shaft, but we did not get the pit head pulleys until the 16th inst. We have purchased second-hand trucks, cages, flat sheets, and 500 ft. of iron rails, all in good condition, very cheap. These will be sufficient for our present use. I expect to haul with the engine in six days from date. The contractors at 200 ft. level have driven 44 ft.; present distance from shaft, 96 ft. They are now in a strong sandstone bar, which will probably continue for 20 ft.; the ground will then be a little easier for them. They are good working men, and I expect they will complete their contract, although I do not think they will make the current rate of wages. We have crushed for the public during the month 31 tons of stone.

AUSTRALIAN CENTRAL (Gold).—Mr. Gill, Fryerstown, Dec. 30: "I have to acknowledge receipt of wire credit of 1000, also the message for 'deep level.' From that I infer that it is the wish of the shareholders that I should at once commence work, and that it is their intention to supply the funds for so doing. Before doing so I consider—in order that I may outlay the additional funds to the best advantage—it necessary that I should be informed as to the amount raised. I shall, therefore, defer active operations till the arrival of the next mail (due Jan. 13), when I shall be in possession of full particulars. As regards the amount I shall require for 'dead work,' I must state, first, that before commencing the new level from the present chamber, or in the event of deciding to deepen the shaft, as I suggested in my last report, I must thoroughly repair the lower portion of the shaft, at an outlay of about 600. On completion I shall require not less than 2000, monthly for (say) three months to meet the cost of the deep level work, that being about the time it will take before I can 'tap' the deep ground. This sum of 2000, does not allow for any contingency that may occur, but will be the actual cost for labour, &c. In addition to that sum, it is of the utmost importance that I should commence laying in a winter's stock of firewood and mine timber: about 4000, or 5000, worth of timber is always an available asset under any conditions, and the saving to the company, taking price and quality into consideration, will not be less than 50 per cent. An additional 1000, per month will meet contract charges. I may state that so soon as the new level is advanced a sufficient distance to enable me to drain the deep ground north, at the point where we were compelled to discontinue work, there will be a large extent of gutter available for blocking at once, the opening drive having already been made, most of which, however, has been carried over the wash-dirt."

YORKE PENINSULA.—The directors have advices from the committee of inspection of the company at Adelaide, dated Dec. 31, 1874, with reports from the Kurilla Mine to the 18th of that month. Capt. Anthony reports that the winze west of Deebie's shaft was being converted with all dispatch into a new engine-shaft, for the purpose of reaching the ore in the bottom of the 25. In widening the 25, driving east of Deebie's, to receive temporarily the stuff coming from the new shaft, some rich stones of ore of 30 per cent. for copper had been raised at a point where a considerable quantity of good ore was met with in the 15 above, and a cross-cut was in consequence being driven there. The Duryea engine has been found in fully as good condition as expected, and was in course of removal to the site of the new (drainage) shaft. The 15 and 25, west of Hall's shaft, were being driven east towards the trial shaft A on the first new discovery on that lode. (The trial shaft A being 100 fms. east of Hall's engine-shaft.) The lode in these drives had greatly improved, and the trial shaft was being drained by them. The trial pit No. 1 on the new lode, north of A, was down 10 fms., and being sunk deeper. Capt. Anthony writes:—"After coming on the blue and green ore at 3 fms. deep, this shaft has never been continued; several unimportant changes have been met with, but the ore vein has continued. It is now at 10 fms. deep yielding 1½ ton of 15 per cent. ore, at the bottom, and improving." At trial pit No. 2, on the same lode, 3 fms. west of No. 1, he reports having come on a vein of rich green ore at 6 fms. deep. With the view of further testing the continuance of this lode westwards, Capt. Anthony was sinking another pit 10 fms. west of No. 2, in which the lode had been found to continue regular and decided, and with indications that

ore would very soon be reached there. This will prove the new lode for a distance of 18 fms. He remarked:—"I am much pleased with the development of this lode so far as I have gone. Taking the ore in No. 2 trial shaft in connection with No. 1 shaft, every promise is held out of early and remunerative returns. It is true that I have not yet met with a large deposit, but the ground is soft, and the ore of good quality, and the improvement in depth is gradual and steady. The ore being discovered in pursuing these new discoveries will pay for such labour as is now being bestowed on it."

SCOTTISH AUSTRALIAN.—Dec. 24: The manager reports that the company's trade for November was exceptionally inactive, and that the sales of coal from Lambton Colliery amounted to 4514 tons. At the company's Rock-hampton copper property about 30 tons of ore of from 20 to 25 per cent. and upwards had been raised, and about 40 tons of ore from 10 to 12 per cent.

ENGLISH AND AUSTRALIAN (Copper).—Jan. 2: All the furnaces both at Port Adelaide and Newcastle were in full work. Since date of last advices 160 tons of copper had been shipped.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Feb. 3, 1875, per Minho (S.), dated Morro Velho, Dec. 31:—

The produce extracted during the second division of the month of December, being a period of 13 days, amounts to 15,354.5 oits. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From mineral stamped.....	14,328.6	from 1551	= 9.239
Re-treatment	1,025.9	"	= .661

Total 15,354.5 " 1551 = 9.899
Oits. Ozs. Troy. Tons. Oits. Ozs. Troy per ton.
Or 15,354.5 = 1770.1240 from 1551 = 9.899 = 1.1412

The foregoing is very good produce, both as regards the yield from the mineral treated and also as to daily gold return—1181 oits. per diem. The remaining ten days of the month should give about the same rate of produce.

Jan. 1.—Measurements of the driving, sinking, and space of ground excavated during December have been taken to-day, and show the following results:—

	Fms. ft. in.
The driving westward under roof in December	1 5 7
The sump has been sunk vertically during December	1 0 6
The height of the first slope is	2 2 6
" " second slope is	2 2 8
" " third slope is	3 1 5

Width of lode in sump

We have now, therefore, three fair-sized slopes to work on in quarrying the mineral, and a good lode from east to west, which gives fair produce in the stamps.

	Fms. ft. in.
The length of the excavation is now	28 5 10
During the year 1874 the sump has been sunk vertically	13 1 10

We, therefore, enter upon the year 1875 with a fair prospect of doing creditable duty in both sinking, stoping, raising of mineral, and extracting creditable produce.

Advices received the 16th February, 1875, per Boyne (S.), dated Morro Velho, 16th January:—

GENERAL OPERATIONS.—Since the beginning of the month, and the date of my last advices (Dec. 31), the general work, both in the mine and at surface, has been carried on without interruption. During the first 13 days of the month we have had rainfall on 11 days, registering 8.21 inches. Although there have been several trifling earthfalls our water courses have stood well, and conveyed the full desired supply to the works without any interruption, enabling us to do more than average duty during the period now referred to.

PRODUCE FOR THE MONTH OF DECEMBER.—The gold return obtained during the month of December amounts to 35,779.6 oits. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From mineral stamped	33,356.9	from 3693	= 9.032
Re-treatment	2,422.6	"	= .636

Total 35,779.6 " 3693 = 9.668
Oits. Ozs. Troy. Tons. Oits. Ozs. Troy per ton.
Or 35,779.6 = 4124.8048 from 3693 = 9.668 = 1.1167

The foregoing produce is 2010 oitavars more than was extracted in the month of November, and the yield per ton from mineral treated is also a trifle higher. The quantity of mineral treated is also 169 tons more than was pulverised in November. This produce may be considered satisfactory for the month of December.

COST AND PROFIT.

	£	s.	d.
The produce for December being 35,779.6 oits.			
Deduct loss melting into bars	140.2	"	"

35,639.4 at 7s. 9d. per oit. = £13,810 5 4
Cost, less sums received in reduction of the same 5330 5 1

Profit on working for December £ 8480 0 3
The cost for the month is 4700, above the average of the previous six months. This increase has arisen in materials, provisions, charges at Rio, and amount paid for export duty on increased shipments of gold.

The profit, however, shown on the month's working is large, and should be considered satisfactory to the executive and stockholders of the company.

MINING DEPARTMENT.—The work in this department has been conducted steadily and efficiently during December. The quantity of mineral raised and conveyed to the stamping floors being large, 4581 wagons, the result of an average attendance of 105-80 bidders daily, and giving a duty of 43 wagons per borer employed during the month. The sinking has not been so much as in November, owing to the difficulty of getting the hauling done from the sink. The sump has been sunk vertically 6 ft. 6 in., and means have been provided to admit of the kibble working more effectively in the sump.

The sinking, driving, and stoping have been let on contract for a period of three months, commencing from Jan. 1, on very advantageous terms for the company. There is no change to report in the lode, excepting a little increase of killas continues in the western section. The stoping condition of the body of mineral is becoming more favourable, and the stopes getting into better working order for quarrying the mineral.

REDUCTION OF WASTE.—The stamping-mills and the general reduction machinery have been kept pretty constantly at work, except when under essential repairs during December, and full average duty has been done in pulverising and treating the mineral. The arrastras have been kept fully at work, and the treatment of the sand by amalgamation has been efficiently and satisfactorily effected. We have had a rather heavy loss in quicksilver in the sublimating process for some months, owing to leakage in retort, and failure in the joint of pipe leading from it to condensing pan. The recovery of the gold contents of the ore is satisfactory.

GOLD EXTRACTED TO DATE.—The produce for the first division of the month of January, being a period of 11 days, amounts to 12,919.2 oits. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From mineral stamped	12,028.0	from 1552	= 7.735
Re-treatment	891.2	"	= .573

Total 12,919.2 " 1552 = 8.308
Oits. Ozs. Troy. Tons. Oits. Ozs. Troy per ton.
Or 12,919.2 = 1489.3794, from 1552 = 8.308 = 9.978

The above yield is below that obtained in the first division of the month of December—1698 oits. per ton. The gold return is very good, giving an average of 1174.4 oits. per diem.

The following telegrams have been received:—
On Jan. 23, produce 11 days (first division) of January, 12,750 oits.; profit for the month of December, 84000, the cost being 4000, above the average.

On Feb. 5, produce 10 days (second division) of January, 12,250 oits.; yield 8.4 oits. per ton.
On Jan. 17, produce for the month of January, 37,500 oits.; yield 8.7 oits. per ton. All going on well.

DON PEDRO NORTH DEL REY.—Report for December.—Produce and Cost: Produce, 834 oza. Troy, at 8s. 6d. per oit., 30750. 6s.; cost, 24340. 18s. 9d.; profit, 6400. 7s. 3d.—First Division of January: Produce weighed, 26900 oits.; remittance (one month), 75300 oits. bar gold.

SAN PEDRO.—R. M. Kitto, Jan. 7: Mr. P. O. Wilson left here for Valparaiso, according to your request, to make the necessary arrangements concerning the banking account, &c. I am glad to state that the boiler is delivered on the mine, and the car left again yesterday for Sotatudo Railway station to load the other boiler. I do not think there will be any difficulty in bringing up the other, as the car is now made quite strong enough to resist double the weight.—Mine Report: At the new shaft the water is being kept 14 metres below the 135. A tribute pitch in the bottom of the 47 fm. level is producing 2 tons of 30 per cent. ore per fathom; this is all the work doing inside the mine. We are taking out about 500 quintals of ore per month from the burrows of from 16 to 18 per cent.—Lima Mine: The cross-cut driving south of east is still in a good channel of ground, by one man, at 14 ft. per metre. The end driving east, by one man, is producing stones of ore. The end west is suspended, as I want all the people to assist about the machinery. We have had work in the Santa Helena and San Antonio Mines in the past month. All the machinery will be on the mine by the 15th of the present month.

RICHMOND CONSOLIDATED.—Cablegram, Eureka, Nevada: "Hall, London: Week's run 446,000."

ALMADA AND TIRITO.—The following telegram has been received by the directors of the above company from Mr. Clemen:—"December profit for the month 12,313."

SANTA BARBARA (Gold).—Report for December: The directors have received advices from the mine dated Jan. 14. The manager writes that the lode throughout the mine maintains its usual size and quality. The quantity of ore during December was 696 tons, yielding 2305 oits. of gold, equal to 3312 oits. per ton.

The expenses for December were	£256 8 2
Less amount expended for new works	150 1 10 = £806 6 4
Value of 2305 oits. of gold at 8s. 6d. per oit.	979 12 6

Profit for month £173 6 2
COLORADO TERRIBLE LODGE.—Feb. 15: The agents letters to hand this morning are dated Jan. 21.—Monthly statement: Ore raised during the month of December:—1st class Tons 1000 \$5,000.00
2nd " 200 1,000.00
3rd " 100 500.00
Total 1300 6,500.00
Cost of 1300 tons 2,000.00 = \$4,500.00
Month's expenses 6,209.59

Balance \$10,653.41
Ore sales: To W. Church, 10 tons 1446 lbs. equal 2632.65. Deliveries from Jan. 15 to 23: To W. Church, 13,200 lbs. 2nd class ore of G. W. Hall, and Co., 7675 lbs. 1st. class ore; total, 20,775 lbs. Cash received on account of ore, \$3000. The mining captain's report continues unchanged.—G. T. T. agent.

JAVALL.—The manager (Jan. 5) reports that 40 varas had been driven, yielding 320 tons. The balance of the quartz crushed during the month was taken from the stopes and surface. The mill worked 23½ days, crushing 1300 tons of quartz, yielding 522 oza. of gold, valued at 13700. Expenditure for the month, 7500. 3s. 7½d. (including 1422. 8s. capital account), this leaving a profit of 726. 4s. 4½d. as the working of the month. Every month we discover more valu-

able ground, and if the engine works satisfactorily we can anticipate a good result in the dry season.

SANTA BARBARA.—Mr. Hilcke (the manager), Jan. 14: Report for December: The lode throughout the mine maintains its usual size and quality. The quantity of stone stamped during the month of December was 696 tons, yielding 2305 oits. of gold, equal to 3312 oits. per ton. The expenses for the month of December were 256. 8s. 2d.; less amount expended on new works, 150. 1s. 10d.; value of 2305 oits. of gold, at 8s. 6d. per oit., 979. 12s. 6d.—Profit on month's working, 173. 6s. 2d.

BLUE TENT CONSOLIDATED HYDRAULIC GOLD.—C. W. Tozer, Jan. 21: I have this day sent you the following cablegram:—"After a run of 18 days have made a partial clean-up of the Enterprise claim. The gross returns are \$6000." We had not finished cleaning up the Enterprise when a very heavy rainfall commenced, rendering it impossible for the time being to clean up, and as the water was abundant in our own ditches (pure water) we at once put the flumes, &c., in condition for washing, so as to utilise the water. Our own ditches, for a few days at least, and I hope many days, will deliver \$1000 worth of water per day, and I deemed it best to cut the clean-up short, and save the water. The time given as the run (18 days) means all the running done on Enterprise up to 19th inst., and as the run (18 days) constant running with three pipes. We have been able, owing to the scarcity of water, to run only by day, and then only one or two giants. We are now using three constantly by day, and one or more by night. We have been detained for two or three days at South Yuba claim by reason of the rain storm, but we are now in full blast again.

BIRDSEYE CREEK.—G. S. Powers, Jan. 23: It has been raining here the most part of the time since the 15th; the streams are higher than they have been for several years. The claims are all washing steadily at present, with fair prospect of a continued supply of water for several months at least. The tunnel is making about its usual speed, and I shall be glad when the connection is made, as it may get rid of that expense. The Stehr claim looks well, and we are at present washing, and I am in hopes to get better returns from this claim this season than last. Walopna is very hard, and not likely to give better returns than heretofore. Neece and West appear much the same, but still I feel confident that we must strike rich dirt before very long.

MALPASO.—Dec. 25: After last clean-up on Nov. 7 we commenced running on the 13th, the interval being occupied in repairing the sluice. On the 15th no work was done, on account of its being Sunday, though, as a rule, the work appears to have been carried on on that day as usual. About four hours were taken up on Nov. 25 in replacing rocks at head of the sluice, a few hours on Dec. 2 in shifting the machine, the same on Dec. 10. No work on 11th, 12th, and 13th, on account of a break in the sluice. On the 14th resumed, and continued without interruption till Dec. 21, when it became necessary to replace some blocks in the sluice, and only five hours work was done. On the 22nd employed in running out the cut-work done, ten hours. On the 23rd cleaned up, and took out of the retort 151 oza. 6 dwts. of gold. The following is a summary of the work done during the last run:—Average inches of water, 483½; hours run—new dirt, 43½—waste, 267; gold obtained, 151 oza. 6 dwts.

MALABAR.—G. B. O'Reilly, Dec. 26: Pipeclay: You are already aware that this has been left, and bed-rock (run) struck. All the stuff we washed outside this run, towards the head of the sluice, was trash, and the little fair gravel which gave us some returns was a mere overflow from the channel further ahead of us. This has become evident to myself and Mr. Anderson, and we are at the same time convinced that we are now entering the true channel of the quartz veins, the positive proof by the change in character and sudden dip in the bed-rock, the appearance of really first-rate streaks of gravel, and total absence of pipe-clay, besides many other indications of less moment, such as the finding of garnets and pyrites, and the change in colour and appearance of the stones and boulders; this channel from the present appearance promises to be extensive, but it will take a little time yet before we can get in on the bottom, as you are aware we have to cut in through a rim rock, soft in many parts, but in others crossed by veins of harder rock, which requires blasting.—Grade: We have kept down our cut in the pipeclay as deep as possible with our limited supply of labour; and although there is much grade still available, should we strike a deep channel we can without any great difficulty or expense go back to the head of our sluice, and bring up a regular grade to a point where, always supposing the channel runs very deep, we should have to run a short channel. This, however, is matter for consideration when we have cleared any doubts still existing as to the extent and character of the channel.

Mr. Anderson and myself are far more interested now in opening into the channel, underneath the flat part worked by Spaniards, than fixing our attention merely on the ridges to the north-west of us—those ridges may be on the other rim of the channel. At present we have a space of over 250 ft. in length and 200 ft. in breadth stripped to north-west of the rim rock; this ground we have run down as far as our grade will allow, but as we gradually deepen the cut, at which we are continually at work, we get command over the bottom ground; as soon as we have a large space fairly uncovered we shall set to bed-rock, and determine the depth of channel and the richness of the ground. The Spaniards never got within 15 ft. of where we are now, and, therefore, the channel must be virgin ground. After consulting with Mr. Anderson we have resolved to clean up our sluime before the mail of the 20th prox., as by that time we hope to have had a channel turn out the bottom of the ground now uncovered, and which appears to be quite rich as far as we have been able to examine it.—Ditch and Sluice: The very heavy rains lately experienced have hardly affected our works, either in the ditch or in the outlet ravine.

CHONTALES.—W. Smedley, Jan. 5: On account of the Christmas holidays, during the past month we have only crushed 1595 tons of ore, from which we have obtained 2567 oza. of gold, being an average of 3½ dwts. per ton. Our total cost for the month is \$3031.78; we value the gold obtained at \$2410.60, let the profit of \$373.22. The above cost includes the sum of \$158.67 charged to construction account.—Santo Domingo: In the western stopes the lode continues wide, being at present upwards of 9 ft., about one-quarter of which consists of hard quartz; on account of the scarcity of labour we have not been able to do much towards opening up the eastern end. The quantity of quartz extracted has been 454 tons, and the yield about 3½ dwts. per ton.—San Sebastian: The work during the past month has been entirely confined to the stopes over No. 2 level, on the north lode, the width of which is at present 4 ft. The yield of quartz, which has been 493 tons, and the yield about 3 dwts. per ton; as soon as possible I shall push on the rise to communicate Nos. 1 and 3 levels on the south lode.—San Benito: The lode in the stopes is at present about 6 ft. wide. The new cross cut to intersect the lode in the eastern end of the mine is proceeding satisfactorily—the ground continuing favourable. In six weeks at furthest we shall strike the lode, shortly after which we may look for an improved yield. The quantity of quartz extracted has been 417 tons, and the yield about 3½ dwts. per ton.

Estrella: I am sorry to say we have not been able to continue towards opening this mine. The heavy flow of water in No. 1 level still continues, and we have a difficulty in getting men to work in the end. I hope, however, during the present month to find the lode west of slide. The quantity of quartz extracted has been 250 tons, and the yield about 2 dwts. per ton.—San Antonio: We have been engaged during the past month in re-opening and re-timbering the old level on the course of the lode. I am glad to say I consider the prospects encouraging. The level has been small, and at present we are taking quite a little of it, which has been left on the north wall, and was not very high. I believe in a little time we shall find this a very fair mine. The quantity of quartz extracted has been 71 tons, and the yield about 4 dwts. per ton.

Machinery: I am sorry to say that on account of the very wet weather during the past month but little progress has been made with the pneumatic stamps, it being impossible to carry on outside works, but I trust during the present month to have the whole of the timber on the ground, and shall push on the work as rapidly as possible. I intend also to re-open Consuelo deep level, and endeavouring to let the contract for the extension of the tramway, which is necessary should be done before commencing operations in the mine. I regret exceedingly that the result of the last few months has not been so satisfactory, but I really think that, in spite of the low yield, as soon as we are able to work the mines on a better system, and obtain a large supply of quartz, we shall make fair profit.

NEWFOUNDLAND.—J. Nancarrow, Jan. 6: I beg to send you a setting report for the present month:—The 20 to drive east of Cooper's shaft, by six men, at \$50 per fathom; lode worth 1 ton of lead per fathom. The same level to drive west of shaft, by four men, at \$48 per fathom; lode worth 1 ton per fathom. The 10 to drive east of Cooper's shaft, by four men, at \$48 per fathom; lode producing good stones of lead. The 20, east of McConochie, to drive by six men, at \$50 per fathom; lode at present poor, which I look at as only temporary. The 10, by four men, at \$50 per fathom; lode worth 1 ton of lead per fathom; lode worth 2 tons per winze to sink below the 10, by three men, at \$50 per fathom; lode worth 1 ton per fathom. The deep adit east of Kelly's shaft, on the north lode, by four men, at \$52 per fathom; lode producing good stones of lead. The deep adit end, east of Doctor's shaft, to drive by two men, at \$45 per fathom; lode producing good stones of lead. The slope in the shallow adit, east of White's shaft, by four men, on account of having to cut out a piece of ground, put in stull, &c.; the lode is worth fully 1½ ton of lead per

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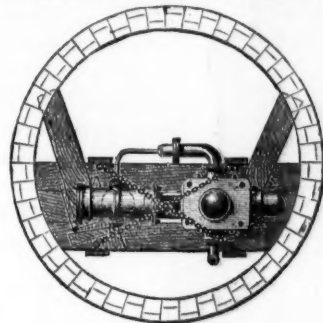
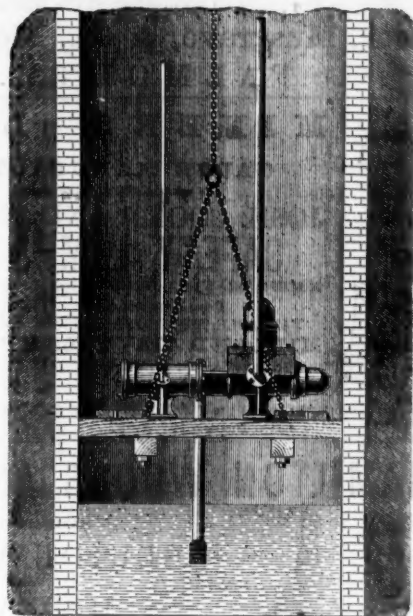
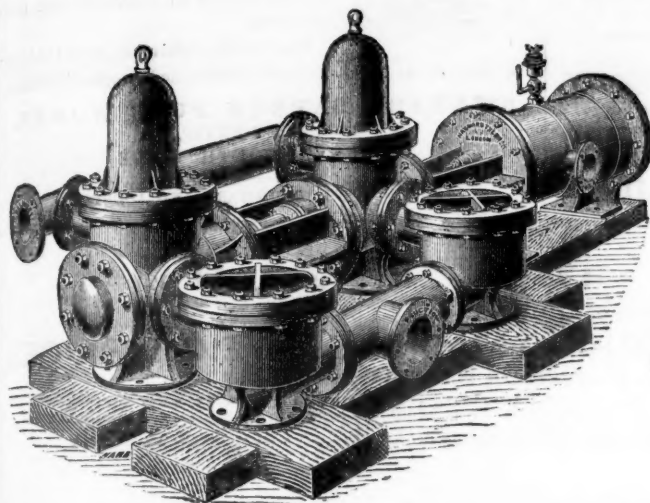
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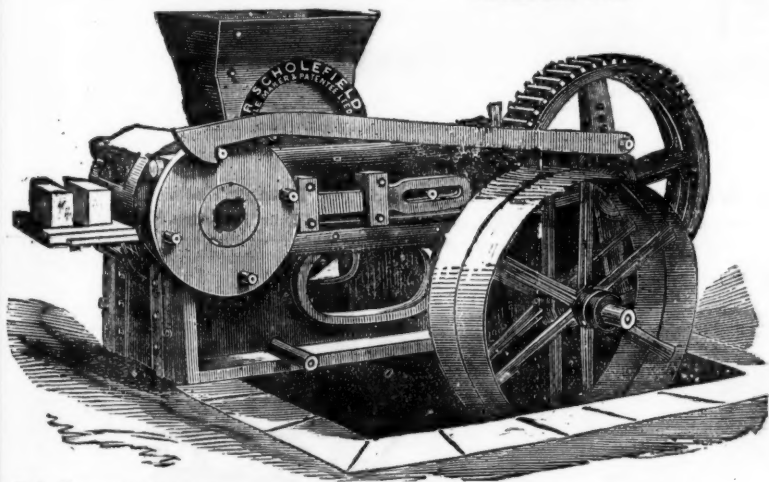
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R. S. begs to call the attention of all Colliery Owners in particular to his PATENT SEMI-DRY BRICK MACHINE, and the economical method of making bricks by his patent machinery from the refuse that is taken from the pits during the process of coal-getting, which, instead of storing at the pit's mouth (and making acres of valuable land useless), is at once made into bricks, at a very small cost, by R. S.'s Patent Brick-making Machinery. If the material is got from the pit hill, the following is about the cost of



production, and the hands required to make 10,000 pressed bricks per day:—

2 men digging, each 4s. per day	£0 8 0
1 man grinding, 4s. 6d. per day	0 4 6
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0 2 0
1 boy greasing, 1s. 6d. per day	0 1 6
1 engine-man, 4s. per day	0 5 0
1 man wheeling bricks from machine to kiln, 4s. per day	0 4 0

Total cost of making 10,000 pressed bricks £1 5 0, or 2s. 6d. per 1000.
 (SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging. As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

THE MACHINES CAN BE SEEN IN OPERATION AT THE WORKS OF THE SOLE MAKER AND PATENTEE DAILY.
 COLUMBA STREET, WOODHOUSE LANE, LEEDS.

SAFETY-LAMPS.—Messrs. EDWARDS and Co. (for Mr. A. B. Boulton, of Paris) have patented an invention which consists in replacing the Davy or safety-lamp ordinarily used in mines containing fire-damp by improved lamps supplied with air from outside the mine. For this purpose a fixed pipe or pipes is conducted down the mine, and branches from it are led into all the workings. Compressed air is forced down the pipe by means of air-pumps worked at the surface, and the improved lamps are screwed to the air-pipes where necessary by means of couplings and straight or elbow pipes provided with stop-cocks. The improved lamp consists, first, of a metal air vessel which receives the compressed air, and into the upper part of which an oil vessel drops, fitted with a burner, and a wick (either flat or tubular) which can be raised or lowered by means of a knob outside the lamp. The knob can be disconnected from the oil vessel when it is required to remove the latter. Above the air vessel is a tube or cylinder containing a cover of glass or crystal, the upper end of which has fitted round it a metal ring, carrying a gauze cover of two pieces of wire gauze a short distance apart. The glass cylinder is protected by a cage of sufficiently strong metal bars. A reflector is provided, carried by a ring fitting round the air chamber, and moveable into any desired position. Through the centre of the gauze cover an opening is left which can be closed by a stopper, and through this opening a light can be introduced, consisting of a tube or sheath containing an inner spring-clip, which can be raised or lowered by a ring or handle at the top of the tube from outside the lamp. This spring-clip carries a match, which can be ignited by rubbing its end upon a rough surface prepared for the purpose at the top of the oil vessel. When the match is ignited the lamp clip is lighted from it, and the match is then extinguished by drawing the spring-clip into the tube, which can then be removed from the lamp, the opening in the cover being closed by its stopper, and the lamp will then continue burning so long as the supply of oil and of air continues. A valve may be provided in the cover. When necessary this improved lamp may be screwed to a portable receiver of compressed air or oxygen, instead of to a fixed air-pipe.

PIPE-CLAY.—Mr. J. LISTON, of Glasgow, has patented an invention for constructing and arranging the parts of a machine for preparing pipe-clay for and in the making of tobacco pipes and other articles therefrom; the machine consists of a main longitudinal frame formed of two cast-iron open side cheeks, secured together by transverse frames or cross stays, which carry the bearing blocks of the main driving shaft ranged longitudinally up the centre below, and driving, at half its own speed the vertical spindle of a pug mill secured above on the centre part of these side frames. All the movements in the operation and of the machine are taken from this moving shaft by separate cam motions, so as to give the sequential and intermittent action and pauses required, this shaft being driven by any motor or adjacent revolving shaft, by a belt and pulleys in a usual manner. Two curved or segmental blades on the spindle of the pug mill force out the clay at the lower wide part through openings into two close feeding chambers, one on each side of the pug mill outside the framing, with one or two apertures in the bottom of each approximating to the shape of the pipes or moulds into which the clay is forced by vertically reciprocating presses, each actuated by one arm of a lever, having the other actuated by a cam on the opposite ends of a transverse shaft above the frame driven by a vertical spindle and mitre wheels from the main shaft. The ordinary two halves of the moulds are carried on joints so as to open and close longitudinally on carriages reciprocated on guides below each close feeding chamber, by a connecting rod, hanging lever, and cam to each on the overhanging ends of the transverse shaft, all so as to have the clay fed and pressed into them, and cut off in blocks by a wire on the forked ends of a two-armed rod, each reciprocated by a lever on a

rocking spindle, or it might be a cross-head actuated by a cam on the lower part of the pug mill spindle, after which the carriages and their moulds are carried forward out from below the feeding boxes, and have the two halves of the moulds swivelled or closed up on their axes, and screwed tightly together by two raising and gripping cheeks on the top of each of the two slide blocks reciprocated by two beam levers and their connecting rods below, actuated by their back arms from a beam on the main shaft, and screwed tightly together by a cross screw spindle reciprocating in guides on the main frame and working in the said slide blocks with reverse right and left handed screws cut on their extreme ends, which tighten or loosen the grippers as this spindle is turned in one direction or the other by a pendent central lever on it, actuated by a connecting rod having a bowl or roller on its free end working into a cam on the transverse shaft carried in the front end of the main frame, so that when the two halves of the mould are tightened up with the bowl part underneath a vertical reciprocating "stapper," which is brought down by a beam lever and cam on each side of the said cross shaft to form the internal bowls of the pipes, and just as the stappers begin to rise again the back end of the wires—which are guided in a stay and holes formed centrally in the stem end of each mould with their front end secured in the opposite ends of a cross-head reciprocated by a connecting rod and rocking vertical lever with a central stud roller working in a cam on the cross shaft in front—are forced back so as to form the hole through the stem of each pipe; when the superfluous clay is cut away from the top of the pipe and moulds, as soon as the "stappers" have risen clear of these, by blade knives secured on the top of adjacent vertical spindles and straps wound round these in reverse directions, actuated by a rocking lever and cam on the said cross shaft in front; or by the cross-head actuating the wires against the power of springs which turn the spindles and bring the knives back to their normal position, when the two halves of the moulds are opened by the unscrewing and lowering of the gripping jaws by the screw spindle and reciprocating beams below, so that the finished pipes can be lifted out of the moulds, cleaned and oiled, all ready for traversing and re-filling them below the feeding chambers and the operations repeated, all as heretofore described.

MANUFACTURE OF STEEL.—An improved process has been invented by Mr. T. S. BLAIR, of Pittsburgh, Pennsylvania, U.S., for producing steel in the open hearth furnace by the treatment of iron sponge. The iron sponge is mixed with powdered charcoal and yellow prussiate of potash, or the like, and the mixture is compressed into blocks or blooms, which are heated in a heating furnace, the iron sponge being thereby carburised. The heated blooms are then melted in an open hearth furnace, and the fused material is tested, iron sponge or carburised iron sponge being added, according as the material is desired to contain less or more carbon, whereupon spiegeleisen or ferromanganese is added, and the material is run off into moulds as cast-steel.

RAISING WATER.—Mr. R. F. MUSHET, of Cheltenham, has patented an invention which consists of certain improvements, whereby water and other fluids can be raised from a greater depth than has hitherto been practicable by the use of an ordinary suction pump. To the lower end of the barrel of an ordinary suction pump is attached a suction or feed pipe, the united lengths of which barrel and pipe must not together exceed the height to which in practice a suction pump will raise a column of water. The lower end of the suction pipe passes into a covered reservoir or chamber, and extends nearly to the bottom of the same. A second length of suction or feed pipe is inserted through the bottom of the reservoir or chamber, and passes upwards to within a short distance of the top thereof. A similar arrangement of pipes and reservoirs or chambers is continued until the source of water is reached. The reservoirs or chambers are respectively supplied with water by any convenient means, a stratum of air remaining at the top of each reservoir or chamber. The pump is set in action in the ordinary manner, and the water is raised from the source of supply and discharged from the outlet of the pump-barrel. A check valve or valves is or are placed in the suction pipes for the purpose of sustaining the column or columns of water, and thereby rendering the discharge from the pump more uniform than it otherwise would be.

STEAM-ENGINES.—Mr. J. HIGHAM, of Wigan, has patented some improvements in steam and other engines. The invention relates, first, to the slide-valves of steam and other engines, and consists in improved arrangements and constructions for enabling the valve to work throughout its stroke or travel in a perfect equilibrium. In all cases the back of the valve is planed and scraped parallel with the face, and is exactly of the same length and breadth, and the two sides are equal in area, and also the two ends, and whatever is done to the valve in its steam chest on any one of its sides its opposite side must be similarly treated. As the steam is removed from the face of the valve by its contact with the cylinder face, in which are the two steam ports, the steam is caused to be removed from the back of the valve by having a similar face presented to it, which contains two blank steam ports of the same length and breadth as those in the cylinder face, and directly opposite to them, and in some cases the face presented to the back of the valve is the inside of the cover of the steam-chest, and in other cases the face is separate, and made adjustable from the outside of the cover. Another part of the invention relates to the pistons of horizontal steam and other engines, and has for its object reducing to a minimum the wear and tear of the bottom sides of the piston and cylinder, and preserving their circular shape by causing the rim of the piston to be acted upon by a pressure of steam corresponding with the weight of the piston and half the piston-rod.

IMPROVED ENGINE FOR ROCK DRILLS.—By the invention of Messrs. J. BRANDON, and A. W. FRANKLE, New York, steam passages connect each end of the cylinder with the steam chest, and enable the piston to be reciprocated. This piston has annular grooves connected by longitudinal grooves. The channel ways are formed between these heads connect with channels and with a groove steam chamber. There is, in consequence of this relative construction, an equilibrium of steam pressure always maintained on both sides of the pistons, except just before the heads reach the limit of their throw. The steam is momentarily cut off and serves to reverse the position of the pistons and the valve.

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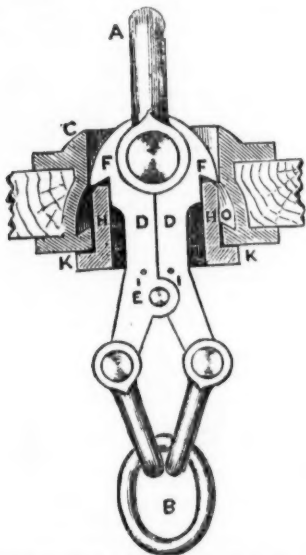
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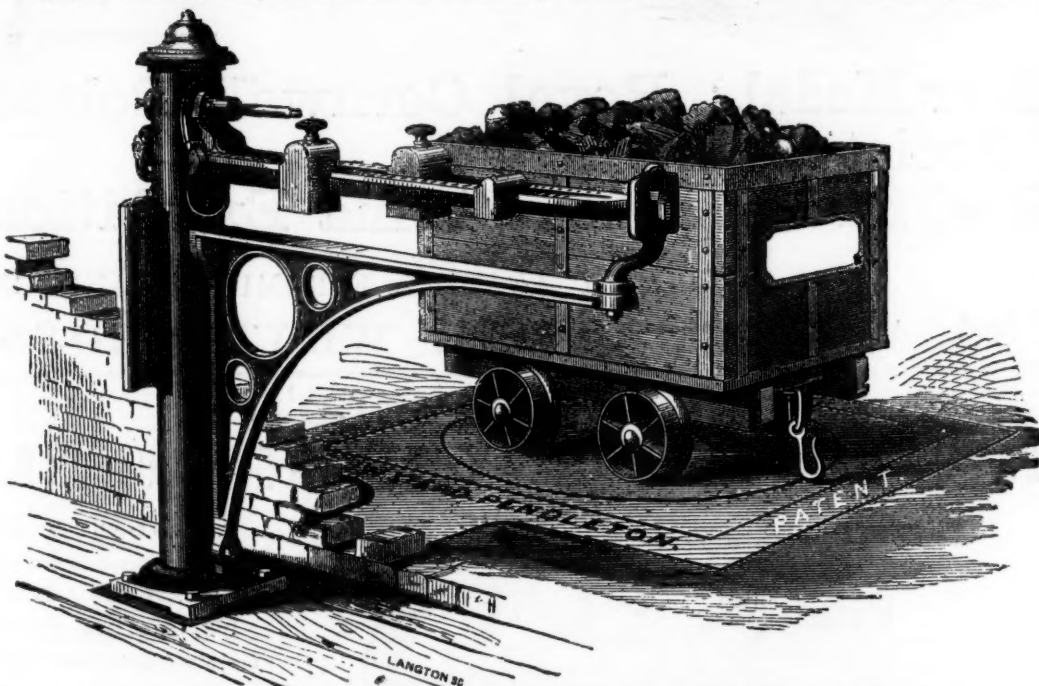
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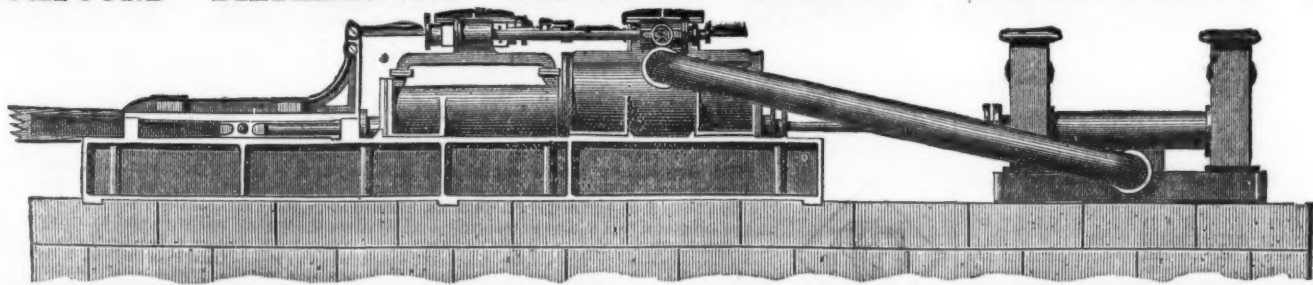
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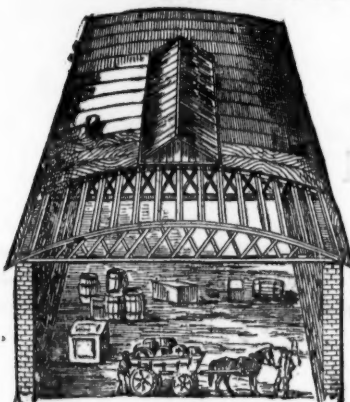
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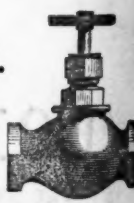
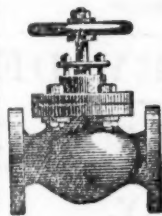
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